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SALESMANSHIP.

DOES the plumber make the most of his knowledge of salesmanship, a selling force recognized everywhere as a potent and constructive power in the field of sales and profits?

The question may be answered in both the affirmative and the negative. Undoubtedly, there are instances where men of the plumbing and heating trades have shown real six-cylinder salesmanship and have prospered accordingly, and again there have been other instances where inferior or, what might be termed, one-cylinder salesmanship has been shown.

It has been declared time and again by leading men in the trade, that the latter type of salesmanship is the most prevalent among plumbing and heating contractors, especially those who are seeking to build up a business through the direct patronage of the public.

In admirable convention essays and in articles appearing in the trade papers, master plumbers and master steamfitters have been urged to inject a little effective salesmanship into their scheme of business.

The science of salesmanship is not the science of deception, as some high-brow critics would have us believe. Successful salesmanship is the power to persuade people to believe in the truth about goods or workmanship. While the practice of deception in salesmanship may flourish for a time, it will prove destructive in the end. A lie can never be permanently constructive. Sooner or later it will heap coals of fire upon its originator and perpetrator.

In the past, many plumbers and fitters have been laboring under the mistaken impression that the public must go to them and not they to the public. They have conducted their shops on the theory of "waiting for something to turn up."

"There is a considerable number of plumbing and heating contractors who appear content to drift with the stream," said an eastern man in the trade the other day. "If business is poor, they lament the fact, but they do little or nothing to stimulate or improve conditions. They seem to forget that there is such a thing as salesmanship—and that it can be employed to create business.

"The plumber, as well as the fitter, has ample opportunity for the exercise of salesmanship in a community. There are always prospects who are interested in better plumbing and heating installations, and it only remains for the plumber or the steamfitter to convince him that he should go ahead and have the needed installations made.

"And here is where some vigorous salesmanship should be displayed. The plumber should emulate his neighbors in other lines of business, and get out and 'drum up trade.' Equipped with jobbers' and manufacturers' catalogues of modern plumbing or heating specialties, he is in a position to approach prospective customers in his neighborhood."

It has been said that good salesmanship is two-thirds courage and persistency, and one-third tact and persuasiveness. While volumes have been written on the "secret" of successful salesmanship, there is after all no really difficult or mysterious methods employed, although the average business college or school of salesmanship would insist that there is, and that it is quite necessary that business men should "take a course." As far as the plumbing and heating contractor is concerned, salesmanship is largely the will and determination to get out and get acquainted with the local property owners—or, in other words, the resolve to "get out and 'land' your prospects."

Yard and Area Drains

Detailed Descriptions with Illustrations of the Proper Construction of Yard and Area Drains

By JOSEPH GRAHAM

IT is necessary that yards, areas and courts should be drained, and since the primary object of such drains is the removal of storm water, they may be considered as a part of the rain water leader system of a building.

Where the "separate system" of sewers is provided, the discharge from these drains is into the storm water sewer,

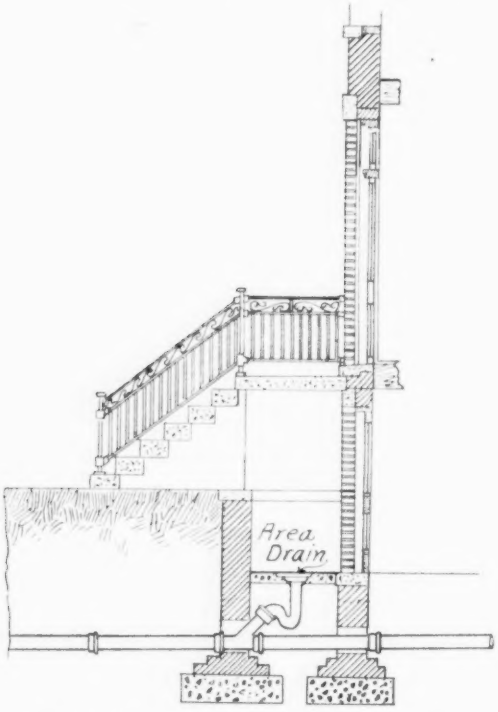


Fig. 1. Area Drain Connected to House Drain.

but where such a system is not installed, they are generally connected with the house drainage system.

In some cities, the connection of the area drain with the house drain is prohibited unless it is absolutely necessary. Dry cesspools are employed to care for the surface water from areas, etc.

Orange, Paterson, Hackensack, Rahway, Harrison, Englewood and Camden, N. J.; Kingston, N. Y.; Laconia, N. H.; and Waterbury, Conn., have this regulation.

In the installation of a system of yard and area drains, provision is made for a receptacle or basin located in the yard or area, which receives the surface water from the areas to be drained. This fixture is known as a catch basin or cesspool.

Plain cast iron receptacles are usually employed for yard and area catch basins, although they may be made of any non-absorbent material, such as brick plastered inside with Portland cement. They should be provided with removable perforated covers, the area of the perforations being made equal to twice the area of the drain pipe.

Fig. 1 shows the manner of connecting an area drain with the house drain.

An important factor in the construction of area and yard catch basins is the quick removal of all water from the interior.

It is customary to provide a deep seal running trap, as

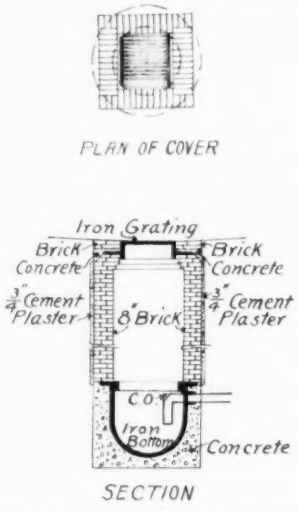


Fig. 2. Catch Basin, as Constructed for Boston Schools.

shown in illustration, Fig. 1, on the discharge pipe from the catch basin. This trap should be protected from frost and should be accessibly located, preferably within the foundation walls of the building. Cleanout plugs for cleaning purposes should be provided and should be full size of traps, when the traps are less than 5 inches.

A sectional view of the style of catch basin employed in the Boston schools is shown in Fig. 2, with plan of the cover.

The catch basin is built of 8-inch brick with ¾-inch cement

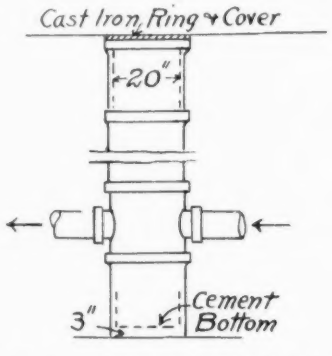


Fig. 3. Catch Basin in Pittsburgh Schools.

plaster on the outside. The bottom is of iron surrounded by concrete. The catch basin is covered by an iron grating.

Fig. 3 shows a type of catch basin used in the Pittsburgh

schools. It is provided with a cement bottom and has a cast iron ring and cover.

The type of cesspool employed by the United States Government for yard and area drainage is shown in Fig. 4. This device is made of extra heavy cast iron, of dimensions shown in illustration. It has a 3-inch connection and is provided with

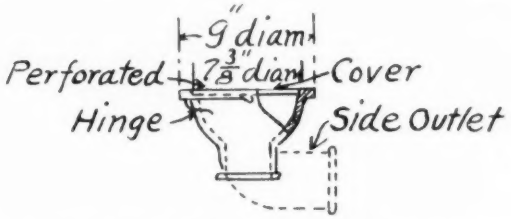


Fig. 4. Cess Pool, as Constructed in Accordance with United States Government Specifications.

a perforated hinged cover plate. As shown, the cesspool is 9 inches in diameter. It may, however, be employed 9 inches square, if preferred.

When connected with the house drain, yard and area drains should be connected inside of the house trap.

It is the general practice, where possible, to connect area and yard drains with a rain leader on the leader side of the leader trap. When connected in this manner, individual traps on the drains may be dispensed with, as the leader trap will be found sufficient.

Connections of this sort have the advantage of insuring a permanent water seal to the leader trap.

Several area or yard drains may also connect into one main

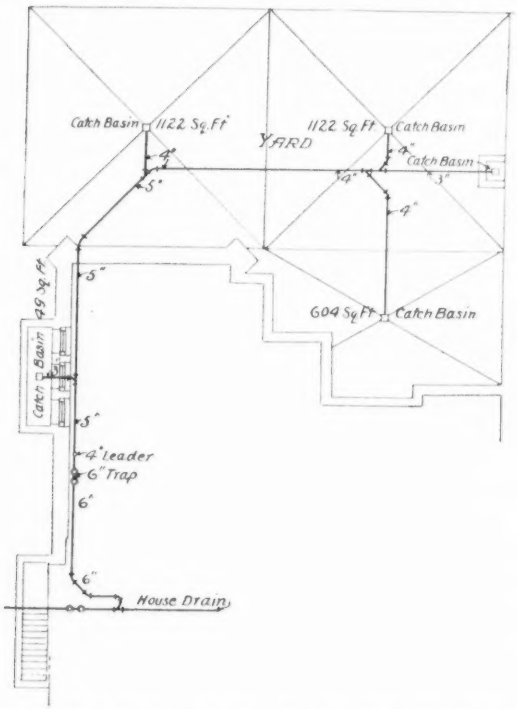


Fig. 5. Yard Drainage System of a New York City School.

drain, in which event a trap is placed only on the main line, which controls the branch drains.

This method of installation is very clearly illustrated in Fig. 5, which shows a plan of the yard drainage system of a New York City school. The boys' play yard is shown in the sketch, the girls' yard being similar. This system also receives the discharge of a 4-inch leader. A 6-inch trap controls the line, which connects with the house drain inside the main trap.

A sectional view of three catch basins connected on one main line is shown in Fig. 6.

Fig. 6. Sectional View, Showing Three Catch Basins on One Main Line.

At Albany, N. Y., the area drain, if trapped, is permitted to discharge into the fresh-air inlet.

It is necessary that yard and area drains be of sufficient size to serve the areas drained under the most severe conditions of service, as in heavy storms.

The size of yard and area drains may be proportioned in the same manner as house drains or leaders.

They should never be less than 2 inches in diameter.

New York City, Philadelphia and Bayonne, N. J., require area drains to be at least 3 inches in diameter, when sewer connected.

Four inches diameter is the minimum size for area drains at Pittsburgh, Harrisburg, Erie, Scranton, Allentown, McKeesport, Johnstown, Altoona and Williamsport, Pa.; and Covington, Ky.

The size of the area drain trap is specified as 3 inches at Philadelphia and Trenton, N. J.

Jersey City requires the area drain trap to be the same size as the branch it serves.

Covington, Ky., requires 4-inch traps.

As a sample of how the rules and regulations on this point are worded, it may not be amiss to quote section 18 of the plumbing law of Allentown, Pa., which went into effect last year. This section reads as follows:

"All yards, areas and courts must be drained. Tenement houses and lodging houses must have their yards, areas and courts drained into the sewer. These drains, when sewer-connected, must have connections not less than four inches in diameter. They should be controlled by one trap, the leader trap, if possible."

Limit to Authority of Traveling Salesman.

The fact that one is a traveling salesman or "drummer" for a house, with authority to sell goods for it, the Court of Appeals of Alabama holds, in Key vs. Goodall, Brown & Co., 60 Southern Reporter, 986, does not of itself carry with it the implied authority to release a party, accepted by the house, and substitute another in his place, or even to collect from the original purchaser the money due for the articles sold.

Remedies in Cases of Conditional Sale.

Where a conditional sale contract provides that the purchase price is to be made in installments at certain dates, and the purchase price is not paid at the times stated in the contract, and the contract provides that the seller may retake the property, the Supreme Court of Idaho holds, in Pease vs. Teller Corporation, 128 Pacific Reporter, 981, that the seller has two remedies—first, the collection of the remainder of the purchase price; second, the retaking of the property, but the seller cannot resort to both remedies.

Points to be Considered in Selecting a Heating System

By CHARLES L. HUBBARD

IN these days when the average house owner is fairly well informed on matters relating to heating it is necessary for the contractor to be very familiar with the advantages and disadvantages of the various systems employed in dwelling house work and to be ready at all times to answer any questions relating to the different methods in common use.

While the older and more experienced men in the business are usually well posted in these matters, a brief outline of the advantages and disadvantages of the different systems of heating may be of considerable value to the beginners.

Incidentally, some of the suggestions noted may be of interest to others.

Although the present article is devoted especially to steam and water heating, as being of particular interest to the readers of "Domestic Engineering," references will be frequently made to warm air or furnace heating for purposes of comparison.

At the start the writer wishes to say he does not believe any one system possesses all of the desirable points or is best adapted to all conditions.

Furthermore, it is not good policy to underrate other systems in comparison with the one which you may specialize on. It is best in the end to be fair to your competitor, and let him have his chance at the work, which honestly belongs to him through the real superiority of his system in any particular case. On the other hand, perfect your own system, believe in it thoroughly, study its advantages, and learn how you may overcome its shortcomings, or, at least, reduce them to the greatest possible extent. One system cannot embody all of the best points, but it may often be improved so as to have the greatest number of desirable features in a majority of cases.

Most contractors doing steam or hot water fitting make a practice of installing both, and their real competitor is the dealer or contractor in warm-air furnaces. In the past, steam and water systems have been considered in a separate and higher class as compared with the hot-air furnace. While this has been true to a considerable extent, it has been due rather to the poor design and faulty installation of the furnace system in many cases rather than to the system itself, which has good points, under circumstances favorable to its use.

Improvements in furnace construction and a better understanding of the principles upon which it operates has led to changes in the sizes and arrangement of the ducts, which have overcome, to a considerable extent, some of its more important faults.

Among the more frequent arguments against hot-air heating, as compared with steam and hot water, have been the inability to heat certain rooms in windy weather; the dryness of the air; the admission of dust and gas to the rooms above through the warm-air pipes; and the greater cost of fuel.

While all of these objections still hold in many cases, where old-fashioned methods are employed, up-to-date furnace men are overcoming these objections to a considerable extent by improved methods of design and installation. From a rather careful study of the situation it would seem that more progress has been made in the Middle West in the way of improvements in furnace heating than in the East, where the smaller contractors are more prone to stick to the older methods.

Inability to heat all rooms evenly is being overcome by (1) confining furnace heating to houses of the size to which it is adapted or by the use of duplicate units, thus making the system compact and bringing the length of the horizontal warm-air pipes within practical limits; (2) by using larger furnaces; (3) by the use of larger ducts and by furnishing an efficient air supply; (4) and by employing return flues for use in extreme weather and for proportioning the amount of outside air to that actually needed at other times.

As to dryness of the air, no system whether steam, water or furnace affects the actual humidity of the air unless special means are provided for introducing moisture by artificial means. The high temperature of the air furnished by a furnace, especially if too small, gives a quality to the air which has the effect of dryness.

Leakage of dust and gas into the air pipes is due to faulty construction, and is not necessarily found in the best equipment.

The cost of operating a furnace system is practically the same as for steam or hot water, when made on the same basis. In comparing a direct system of steam or water with a furnace, a *direct* system of furnace heating should be taken, that is, one in which all of the air is returned to the furnace from inside the building.

In direct heating the steam, water, or air, is simply a medium for transferring heat from the furnace to the rooms above. When a furnace system taking its entire air supply from out of doors is assumed, the comparison should be made with an *indirect* system of steam or water.

A comparison as to fuel consumption between a furnace system which both heats and ventilates, with a steam or water system which only heats the building, is evidently unfair to the furnace system.

No one system of heating is best adapted to all conditions, and it is a mistake for a contractor making a specialty of one type of heating to try to adapt his system to all classes of buildings.

For dwellings of small size the warm-air furnace, when arranged for both inside and outside air supply, is probably the lowest in first cost, and should operate satisfactorily if of sufficient size and properly installed.

It has the advantage that the owner may obtain as much ventilation as he is willing to pay for by simply adjusting a switch damper so as to vary the proportions of outside and inside air.

The principal competitor of warm-air heating in this class of buildings is hot water, although the advantages of this system are more pronounced in larger buildings, which constitute its best field.

In a small building, when a furnace will do the work satisfactorily, there are very few arguments in favor of hot water, although it is much to be preferred when compared with the furnace system as often installed, and for this reason, many people prefer it.

It is probably true that a poorly designed steam or water system will give more satisfactory results than a poor furnace system, as they are more positive in their action and will allow greater leeway in faulty installation without showing the effects so easily.

For dwellings of fairly large size the gravity hot-water system seems to possess a large proportion of the necessary requirements. It may be made to distribute the heat evenly to the different rooms, regardless of their location, furnishing a mild and agreeable warmth without the "over-heated" quality which a furnace gives to the air, when forced beyond its capacity, and it is very flexible, in that the temperature of the water may be varied to suit the outside weather conditions as easily as a hot-air furnace.

While it takes longer to warm up a building in the morning, or when the temperature has fallen too low during the day, it is, by virtue of this defect, capable of maintaining a more even temperature due to the large amount of heat stored in the water contained in the system, which makes sudden fluctuations impossible. As to slowness of warming up in the morning, it is now considered better practice in houses of larger size to maintain a comfortable temperature during the night, rather than to allow the building to cool down and then be obliged to force the boiler for an hour or so in the morning to warm it up.

It requires but little, if any more fuel to operate a system in this way, especially if sleeping room radiators are shut off, the doors closed and the windows opened, as is now the usual custom. Under these conditions a fairly low fire will maintain a comfortable temperature in the remainder of the house during the night, which brings about especially agreeable conditions on cold winter mornings.

Coal can now be fired, the drafts opened, and the sleeping rooms, after being aired, thrown on to the system one at a time without any appreciable cooling effect upon other parts of the house.

One of the former objections to hot-water heating, that of larger radiators, may now be overcome by the use of a "generator" or "circulator," making it possible to carry temperatures corresponding to about 10 pounds steam pressure, thus making it possible to use radiators even smaller than are required for low-pressure steam (1 to 5 pounds). Devices of this kind are simple in construction and entirely automatic in operation.

Danger of the water freezing in unused rooms when the radiators are shut off may be overcome by drilling a small

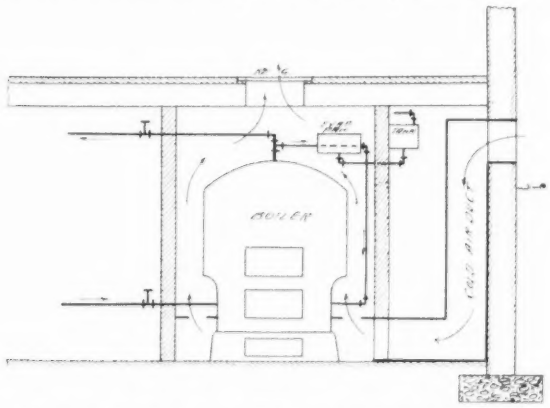


Fig. 1. Showing Enclosed Hot-Water Boiler for Ventilating Purposes.

hole (⅛ to 3/16 inch) through the valve gate, which allows sufficient circulation to prevent freezing, without giving off enough heat to have any appreciable effect upon the temperature of the room.

Ventilation may be combined with hot-water heating by the use of an indirect stack for warming the living room, or when the doors of the more important rooms are kept open into the hall, the house may be treated as a single room, a considerable volume of fresh air at a moderate temperature being supplied to the front hall, by means of an indirect stack, and the foul air exhausted through fire-places in the principal rooms. Heating of the individual rooms in this case would, of course, be done by direct radiators in the usual manner. Recent investigations along the line of ventilation seem to show that regulation of temperature and humidity and a fairly active circulation of the air within an occupied room are of equal, if not of more importance than a large supply of outside air.

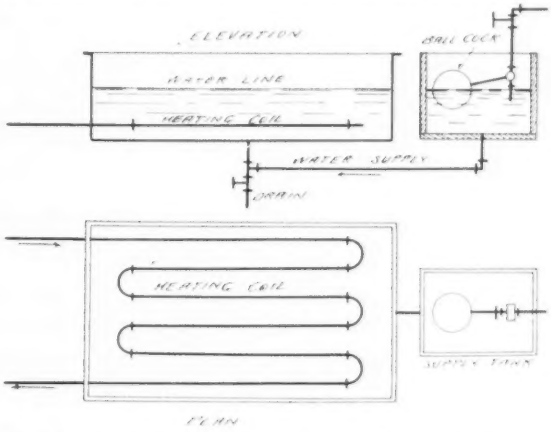


Fig. 2. Showing Elevation and Plan of Evaporating Pan and Supply Connections.

The natural leakage in the average well-built house is considered to amount to at least one change per hour, and this supplemented by a large central indirect stack should furnish plenty of outside air, when care is taken to supply moisture and to maintain a suitable temperature. When the building is warmed entirely by direct surface, the upper window sashes may be dropped slightly, and the thin sheet of cool air entering will usually mix with the overheated air at the upper part of the room and thus furnish a sufficient supply without uncomfortable drafts. If the proper degree of humidity is maintained, the temperature of the room may be carried at 65 deg. with more general comfort than at 70 to 74 deg. with a dry atmosphere. At 65 deg., with sufficient moisture, drafts from incoming cool air are much less noticeable and a considerable supply may be admitted in the manner previously mentioned without discomfort.

Hot water is admirably adapted to maintaining a normal temperature and lends itself fairly well to air moistening. In case an indirect stack is used an evaporating pan can be placed in the air duct and supplied with water automatically through a ball-cock, as shown in Figs. 1 and 2. The water may be heated by a special circulation coil in the bottom of the pan.

The same arrangement may be used in connection with a direct-heating system by providing a special register over the evaporating pan and arranging for a circulation of air over the surface of the water and into the room above. See Fig. 3.

The efficiency of evaporating pans attached to direct radiators depends largely upon the evaporating surface provided as well as the temperature of the water.

Most people do not realize the large amount of water which should be evaporated in the average house in order to maintain a healthful degree of humidity in cold weather when the windows are closed and there is a comparatively large difference between the inside and outside temperatures. Under ordinary conditions this is approximately one gallon per hour for a dwelling of average size, computed

on one air change per hour and average outside temperature and humidity in winter weather.

It will be seen from the above that the problem of supplying a sufficient amount of moisture in the ordinary dwelling is not so simple a matter as it might seem at first thought, owing to the large amount of water required.

A very effective system of hot-water heating for a dwelling is a modification of the "Gold Chamber" system. In

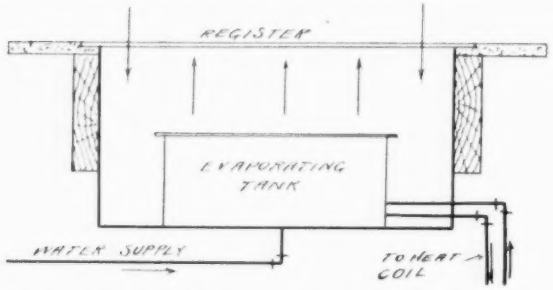


Fig. 3. Showing Independent Evaporating Pan for Direct Heating System.

this case the upper rooms are heated by direct radiation in the usual manner. Fresh air is supplied by utilizing the boiler as an indirect stack, that is, omitting the usual plastic insulation, and enclosing it in a small room or chamber by means of a light brick wall, allowing sufficient space for the free circulation of air around it. This chamber is connected with the outside of the building by means of a suitable duct with regulating damper, and with the hall above through a register.

Fresh air in sufficient quantity for the desired ventilation is allowed to pass over the outside surface of the boiler and thus become heated to a suitable temperature for admission to the rooms above without uncomfortable drafts. An evaporating pan can be placed in this chamber and supplied with a special heating coil, or it may rest upon the top of the boiler, if it is of the right form, and absorb its heat directly from the hot metal.

This general arrangement is simple, inexpensive, and very effective when both heating and ventilation are taken into account.

While the volume of fresh air furnished in this way is small when compared with a furnace taking its entire supply from outside, it will usually be sufficient, when properly moistened and supplemented by leakage, to give ample ventilation for the number of people which the house will ordinarily accommodate.

A furnace, under the conditions stated above, usually furnishes much more air per occupant than is necessary, hence, when making a comparison of the ventilating capacity of a furnace and hot-water system, each should be based on what is actually required rather than upon what the furnace is able to supply under maximum conditions.

The ordinary gravity steam system of direct heating is not well adapted to the warming of dwelling houses, owing to the difficulty of regulating the capacity to meet varying outside weather conditions. The radiators being proportioned for the coldest weather are much too large for most of the year and there is no way to reduce their capacity except to shut them off entirely until the room cools down, or else open the windows. This condition evidently results in an uneven temperature, which is either too hot or too cold, and produces uncomfortable drafts from too widely opened windows.

The only way to secure a simple means of regulation with a system of this kind is to divide each radiator into two separately valved parts, in the ratio of one and two, which makes it possible to use 1/3, 2/3 or 3/3 of the surface as may be desired. By using the one-pipe system and dividing the radiator by means of a blind nipple, the appearance of the radiator is that of a single unit with a steam connection at each end, as shown in Fig. 4.

The defects of the gravity direct system have been overcome in varying degrees by the numerous vapor and vacuum systems adapted to dwelling house work.

The effectiveness of a system of this kind depends upon the possible variation in steam pressure and temperature which may be produced within the radiators. In some the working range is small, while others have a much wider one.

It is necessary that a heating system for dwelling house work be as nearly automatic in its operation as possible, simple in construction, and not likely to get out of order. The growth in number and size of the concerns installing systems of this kind would indicate this form of heating to have reached a thoroughly practical basis.

The field of steam heating includes buildings of larger size than can well be cared for by gravity hot water.

Wherever automatic temperature-control can be applied direct steam is a desirable form of heating and is used in a

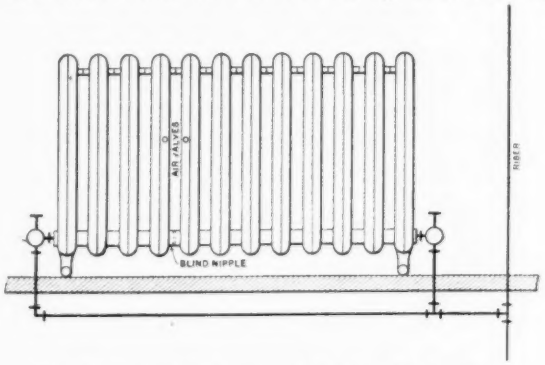


Fig. 4. Method of Constructing a Divided Radiator.

greater number of large buildings than any other system of heating.

When a close temperature regulation is not required, where two or more radiators are located in one room, or where there is danger of freezing, gravity steam is often the most desirable system to install.

Articles to follow will take up in some detail the practical design and installation of steam and hot-water systems for different types of small and medium size buildings.

What Makes a Binding Contract of Insurance?

It frequently becomes an important question as to when a binding contract of insurance is made. The Supreme Court of Oklahoma holds, in Shawnee Mutual Fire Insurance Co. vs. McClure, et al., 135 Pacific Reporter, 1150, that the making of an application for insurance, subject to the approval or rejection of the company to which it is made, is merely a step in the creation of a contract to insure. When the application is made out and forwarded to the company, it is not yet a contract of insurance; it has then only attained the position of a proposition on one side. It requires an acceptance by the other side before it can be said that the minds of the parties have met upon the terms of a contract to insure. To constitute a binding "contract of insurance," there must be a meeting of the minds of parties with authority to contract as to the premises and the risk, the amount insured, the term the insurance is to continue, and the amount of the premium.

The Disposal of Suspended Matters in Sewage

Paper by Rudolph Hering, D. Sci., Mem. Am. Soc. C. E., New York. Read at the International Engineering Congress in San Francisco, September, 1915

SINCE the first World's Fair held in London, 1856, the centers of population of all civilized countries have grown to such proportions and so rapidly that many new problems concerning city works and their management have presented themselves for solution.

Among the more important of these problems are those which comprise the collection and proper disposal of the great variety and mass of refuse materials, the removal and treatment of which in large communities often present a formidable task.

This task is not alone a financial one relating to the economical collection, removal and treatment. It is also a sanitary one, in order to prevent any injury to health and all nuisances incidentally liable to occur. Health may be injured by the spread of disease germs which get into the refuse from sick persons and animals; and various nuisances may be created by a delayed removal, causing chemical changes which create offensive products.

Since such undesirable results have arisen, efforts have been made to obviate them, sometimes successfully, when the conditions were simple and the bulk was small, and sometimes unsuccessfully, when the conditions were complex and involved.

It is less than a decade since we have been able to say that it is not only possible but economically practicable to collect all city refuse, solid and liquid, at the sources for delivery at suitable points, and to finally dispose of its parts so that nowhere along the line either a serious danger to health or a nuisance need exist.

The present paper is limited to a discussion of the treatment of the liquid refuse of a city, usually called sewage, the subject of removing solid refuse having been fully discussed at the International Congress on Hygiene and Demography, held in Washington in 1912. It is further limited to the brief assembly of the essential principles which govern the design and operation of sewage works, with special reference to securing healthful results and preventing nuisances from the suspended matter contained therein.

Sewage is the dirty waste water rejected by a community and serving as a carrier of light solid matter in suspension which is discharged from water closets, bath tubs, wash bowls, sinks, etc. It contains, roughly, 1 part of organic matter and 1 part of mineral matter carried between 1,000 and 5,000 parts of water, this difference indicating the variation in different cities.

The organic matter, which alone concerns the question of health and nuisance, differs materially in quality. Some of it is unstable, breaks down quickly and may putrify within a day, such as certain animal and vegetable liquids; and some is stable and decomposes very slowly, such as hair, wood fiber, epidermis, cartilage and the like.

The unstable matter causes all the nuisances arising from sewage, as it has but a slight resistance to decomposition. It first absorbs oxygen with avidity to form more stable compounds; these have no offensive odor of themselves nor do they produce gases with foul odors. When the conditions have become such that oxygen for absorption is no longer available in the medium holding the unstable matter, other chemical processes become active, producing chiefly hydrogen compounds. Among the latter we have those which produce foul-smelling gases and others which do not.

The dangers to health lie in the transportation to other points of pathogenic bacteria contained in the fresh sewage from sick persons and in the subsequent possibility of their once more getting into the bodies of human beings and higher animals. Bacteria not only adhere to particles of solid matter, but unless disturbed, remain in any liquid carrying them. It is possible that solid particles of sewage may be stranded in sewers, be held back and finally be blown away by an air current, enter the atmosphere and thus, by contact, cause a new infection. It is also possible that liquids may splash and throw bacteria into the air. In both cases the danger of transmitting disease is extremely small if the sewers have smooth interior surfaces, no opportunities for eddies to form, and good grades to cause a rapid velocity from the sewage receptacles to the outfall. These conditions have been advocated for many years and are the same which will also prevent nuisances.

Sanitary Collection and Delivery of Sewage.

Our wash and bath rooms, toilets, kitchens, laundries, etc., are now supplied with fixtures in such a manner that offensiveness can be entirely excluded. This is done simply by giving them forms and surfaces upon which the dirty water can flow away quickly, no solid particles remain on the surfaces and a final flushing with clean water will restore the receptacles to their condition before use.

The pipes carrying into the sewers the sewage thus generated should, likewise, carry it away quickly and completely. The necessary means for accomplishing this are first, smooth and evenly curved and pointed pipes, and second, good currents of air circulation. The former prevents the catching, retention and consequent putrefaction of solid particles, the latter tends to clean up the exposed surfaces which are otherwise usually covered with slimy growths. This air circulation is automatically established by providing openings to the sewer from the street surfaces, and openings to the house pipes above the roofs of buildings. The air currents are produced by differences of temperature within the sewers, on the street surfaces and above the roofs of buildings, and also by sudden discharges of large quantities of water down the house pipes. It will readily be seen that the currents cannot always be in the same direction. When the outside air is colder, the current must be upwards and vice versa. The reversal of air flow through the house pipes is not objectionable if the sewage is not putrescent, no foul deposits are in the pipes and ventilation is free and ample.

It was formerly strongly opposed, particularly in England, to have street sewer air pass up through the house pipes to the roof. It was feared that street sewer air might enter rooms through imperfect pipes or through the fixtures if their traps were not in order. This opposition is still frequently maintained. On the European Continent and in many American cities the ventilation of street sewers through house pipes has, however, been found advantageous and the practice is growing. The house pipes are kept much cleaner, the slimy coating is

largely removed, and the escaping air above the roofs is less odorous than when the house pipes are trapped at the bottom against the street sewer. A careful examination made in this country proved that the escaping air from house pipes contains practically no disease germs or other bacteria and has no offensive odor if the ventilation is good.

After the house sewage enters the street sewers it should be kept flowing without any interruption. This result is readily gotten if the sewers are properly designed and built. The surfaces should be smooth. Vitrified clay pipes, used for small sewers more than any other kind in this country, have the smoothest surfaces. Brick sewers furnish a rough surface even if the joints are carefully made and the bricks are of the best. With good flushing and brushing down at proper intervals they may, however, be kept in a good condition, so as to entirely prevent offensive odors from the suspended sewage matter therein and disease germs from being retained in a virile condition.

Flushing is another important requirement to prevent offensive odors from the suspended matters in sewage. Above ground, within our houses and on our bodies, we use ample amounts of water for cleansing purposes. Below ground in sewers, ample flushing is equally and even more necessary, due to the relatively greater concentration of unstable decomposing suspended matter. Unfortunately, in our country the flushing of sewers has not been given as much attention as is desirable. In almost all European countries, both small and large sewers are flushed frequently, varying from several times a week to once in one or two months. The results of this frequent flushing are very satisfactory and the money is willingly appropriated.

In our country, particularly in smaller cities, we have extensively introduced automatic flush tanks at the heads of all pipe sewers. While these tanks keep the upper ends of the sewers clean and free from deposited suspended matter in a very satisfactory manner, they do not keep the larger sewers lower down the line free from deposits and odors. In this respect our sewer systems could be greatly improved and the odors therefrom materially diminished by introducing flushing arrangements.

When collecting sewers are very long and the distance to the outfall is great, which fact is generally associated with flat grades and slow velocities, we have almost always some putrefaction and offensive odors arising near the lower end. During the long run the oxygen has become exhausted and hydrogen compounds, notably sulphuretted hydrogen, are developed. This condition may be improved by emphasizing several remedies above mentioned. Still another expedient is practicable, by replenishing, through artificial aeration, the dissolved air, from which the oxygen has been exhausted and putrefaction has been initiated. Experiments have been made recently, both in England and in America, to accomplish this purpose and have resulted in more or less success. Where it is possible to force air into a sewage pumping main, under a pressure of at least one atmosphere, good results have been obtained. The air is distributed throughout the water mass, evidenced by the fact that when the pressure is released, the excessive air causes a sewage of milk-like appearance from which the air bubbles soon disappear. If sewage bacteria are present in sufficient quantities, an accelerated oxidation of the dissolved organic matter takes place, and the distance of flow before putrefaction begins is lengthened.

Distributing air into the sewage within the flowing section under ordinary pressures seems as yet to have given only moderately good results.

There is still another method available by which sewage oxidation can be facilitated and putrefaction retarded, should the sewage have to flow a long distance to works for treatment. Incidentally, the expense of the final treatment would also be reduced thereby.

When we consider that but very little of the organic matter which is discharged into sewers at the house is dissolved, and that about one-half of it is dissolved when the sewage reaches the outfall of an average city, and also, that dissolved matter withdraws oxygen from the water more quickly than the suspended matter, we must conclude that a removal of the suspended matter by fine screening higher up the sewer, before much is dissolved, should be of benefit. Fine screens near the beginning of the main sewers might, for instance, not only prevent foul odors from the sewage near the lower districts, but prevent also the necessity and expense of works for oxidizing the amount of dissolved matter which is thus eliminated. Whether or not this expedient will be economical must be determined in each case.

The means for removing suspended matter from sewage are settling basins and fine screens. Settling basins require space in which the flowage can be brought to almost a standstill, and give sufficient time for the suspended matter to drop to the bottom of the basin. Unless this matter reaches a second basin for separate decomposition (see below under "Imhoff Tank") it must be frequently removed, which in the upper parts of a city's sewage system would generally be objectionable. The superiority of settling basins over screens lies chiefly in facilitating the deposit of the finer and water-saturated parts of the organic matter, which screens generally allow to pass on, and which is a condition in the lower parts of a city's system. The particles of suspended matter have their largest size near the sewage origin, and more particles may, therefore, be caught by a screen before a run in the sewer has begun to break them up. Most of this unbroken matter is lighter than water. It first floats and settles, if at all, after it is thoroughly water-logged. Therefore, it would appear that fine screens can be more effective in removing suspended matter near where main sewers begin than where they discharge, and that settling basins can be more effective near the latter points.

The above discussion has covered the general principles concerning suspended matter which should be considered when collecting sewage from an inhabited district, if a complete and rapid delivery to the outfall is to be secured under conditions which are both economical and non-odorous. We have now to mention the general principles which must be considered when finally disposing of the sewage.

(To be Continued)

Indirect Victim.

"I see you have a cold, like everybody else."

"This isn't a cold. I simply got hoarse telling all my friends how to cure their colds."—Washington Star.

"Is there any profit in selling postage stamps?" inquired the man in search of information.

"Not directly," replied the druggist, "but it gets people into the habit of going to the drug store, and after that it doesn't take long to make chronic invalids of them."—Chicago Daily News.

Courage Plus Co-operation to Cure Bad Debts

By KENNETH C. CARDWELL

A CERTAIN fairly progressive and aggressive contracting plumber, measuring pretty well up to the average as a creditable member of the trade, was heard to complain not long ago about the trouble he had in making collections, especially on a number of pretty good-sized jobs on which he had spent his own time and money during the past few months.

"The stuff we sell is usually paid for in cash," he said, gloomily. It doesn't amount to so very much, as compared to the rest of the business, the real plumbing end of it, where we are supposed to make our money. It isn't the little stuff that I'm kicking about—it's the big stuff, where I have my money tied up in material and wages paid out, and then have to wait until the cows come home or thereabouts before I get anything out of it. It's not fair and it's not right; but I don't see exactly what I'm going to do about it, when everybody else is in the same fix, as far as I can see.

"What's more, there's a whole lot of stuff like that on my books right now which I never will collect for, as far as my experience goes. It went on in good faith, with good prospects of collecting; and there it stays—a monument to my vanished faith in human nature, and in the promise of the average man to pay what he owes. Lien? Shucks, man, what's the use of filing a lien? I know it would protect me, as far as that is concerned; but I know, too, and so do you, that if I began filing liens I might as well say good-bye to my business, because I couldn't get any work after that if I offered to do it for the cost of the material. No, sir, the lien law might as well be repealed for all the good it does me. What I want to know is some way to collect my bills without scaring off every prospective builder in the country."

In other words, what he really desired was a gentle and painless method of extracting money from an unwilling debtor; and the answer is that there isn't any such method. If the plumber wants only his money, it is really not so difficult to get it, as far as future business is concerned, as it might seem; for not only does the law make ample provisions for protecting him, but his own association offers him the best of all possible facilities for this purpose. But it may as well be conceded at once, that there is no way to force payment of a debt without incurring the risk of the debtor's ill-will. Retaining his respect is another matter, however, which may be considered as more important, especially since the money goes with it.

There are far too many master plumbers, who take just about the view of the utilities of the mechanics' lien statutes, as the one quoted. That is, they recognize the existence of such laws, but that is about all. They virtually never take advantage of them, pointing out, as a rule, that the time allowed for filing the lien is so short that the debtor has not sufficient time to pay for the work, even where he desires and intends to do so, and that, for this reason, it is a bad idea, from a business standpoint, to file a lien in an ordinary case.

This is about all that can be said for those, who believe they are justified in failing to take advantage of a statute enacted for their protection, and the flaws in this sole legitimate objection are so numerous as to render it almost wholly without force, as a matter of fact. It is true that in some states the time, within which the plumber can file a lien, is rather short, being thirty days from the time the last work is done on the job; but, at the same time, this is not too short to give him a chance to get a pretty good idea as to whether he is going to get his money or not. And if he has reasonable ground for believing that he is going to be left out in the cold, it is certainly up to him to take advantage of the statute, and file his lien, thus making himself absolutely secure for every cent of his claim.

It should be borne in mind, in this connection, that there are, after all, several powers that be, in the construction of a building job of any kind; and, usually, not more than one of them would have any real kick coming if the plumber took advantage of his statutory right to insure the payment of the amount due him. For instance, if the contract is let in a lump sum, the general contractor letting the plumbing, heating and so forth, the architect generally requires the contractor to give a bond securing the owner against failure to pay sub-contractors, and the consequent filing of liens by them, encumbering the property.

This obviously puts it up to the contractor to pay all bills within a reasonable time, his bond making it a decided object with him to do so; and his failure to make good within the statutory period should be a signal to the plumber to see that his rights are protected in the usual method. The architect, be assured, will have no objection to this, his wrath falling rather on the head of the contractor; and it is the architect whose good will, perhaps, is better worth having than that of contractors who make a practice of trying to dodge their sub-contractors' bills. In any event, no one can reasonably object to any man taking steps to protect himself from possible loss. Business men are not so supersensitive.

And the inescapable merit of the lien, properly filed, is that it assures the plumber absolutely of getting his money. The objections to it must be indeed strong to outweigh this highly important consideration. As a matter of fact, there is not the slightest reason why any master plumber, having done his work in the proper manner, should feel any hesitation in filing his lien, if he has not been paid up to the time when the filing period is about to elapse. In fact, he is rather foolish if he fails to do this, inasmuch as it means, in many cases, that he is exposing himself to a possibly serious loss. Of course, there is no reason why, finding such action necessary, he should not lay the matter frankly before the owner, the architect or the contractor, or all of them, and explain his position; and the chances are that there will be no hard feeling about it.

It may very well be, perhaps, that if only two or three members of the trade in a good-sized city see fit to protect themselves by filing liens, there might be trouble for them; which is exactly why it should be a matter of association policy, as all matters connected with the general welfare of the trade should be. For instance, if it were adopted as a general rule, subject only to valid and bona fide exceptions in cases of known merit, that all members should file liens where payments are not made within the statutory period, it is plain enough that no one plumber would suffer by reason of any ill-feeling

resulting from this. On the other hand, the chances are that the result would be an all-around speeding up of delinquent contractors in the matter of payments, which would certainly be a very decided advantage.

It is fast becoming a regular practice for master plumbers' associations to affiliate themselves with retail merchants' associations, in order to avail themselves of the credit information nearly always collected and exchanged by the retailers for the benefit of their members. This enables every member to secure promptly and without trouble an accurate line on the credit record of any resident of the city; which, in a good many cases, is sufficiently conclusive to determine the character of the person covered, as far as credit is concerned.

Such information as this, coupled with that which should be interchanged among the plumbers themselves, with reference to the persons—house owners and contractors alike—with whom they do business, is sufficient to give ample material upon which to base one's judgment. Backed by this, and by the fact of failure to pay within the prescribed thirty or sixty days after the completion of work, it is hard to see why any plumber should hesitate to "slap a lien on the job," as it were. All it needs is a happy combination of courage, common sense and co-operation, which a good plumber, a member of his local association, should not find difficult to supply.

POLICEMEN AS SANITARY INSPECTORS.

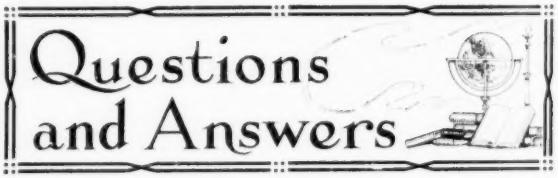
The question of efficient sanitary policing has always been a source of trouble to health departments. The expense of maintaining a sufficient force of sanitary inspectors is almost always too great for the average municipal health department. The small appropriation available for this purpose restricts the individual compensation, and inferior and untrained men are selected, says "The Ohio Public Health Journal." As a matter of fact the average municipal health department faced with this problem chooses one of two solutions, both bad. In the one case too large a proportion of the department's appropriation is expended for inspection service and the other and more important divisions of work are neglected. If the opposite policy is pursued, a sufficient number of inspectors for covering the health district cannot be secured without restricting the individual's compensation to such an extent that a very inferior type of inspector is the result.

Sanitary inspection is an important division of the health department's work. It is by means of the inspection service that the department is brought into close touch with the public. A great deal of the indifference with which the public treats the health department may be traceable to inferior inspectors, for as a rule the public comes in contact with the health department only through its inspection service. Judged by their forces of sanitary inspectors how many health departments make a good impression in the eyes of the public?

The sanitary inspector should be a trained and disciplined individual. He should be thoroughly familiar with the health laws and regulations and should be sufficiently well educated to use correct English in conversation and in making reports. He should be patient, yet firm, and always polite and dignified. In person he should be neat and clean, and a uniform of some kind should distinguish him from the civilian population. In the smaller cities especially, the average health inspector is just the reverse of all this and for the reasons stated above, namely, insufficient compensation, too large districts, inferior men, and no discipline. In order to solve the question of efficient sanitary inspection without too great expense, several cities have experimented with policemen. The policeman is an individual who comes into close personal touch with the people and is the embodiment of the law. He is disciplined, neat, usually patient and firm, and his uniform distinguishes him as an officer of the law. He is usually well acquainted with the question of nuisances and may easily be taught other phases of sanitary inspection. His "beat" is smaller than the average sanitary inspector's district and a considerable portion of his time may be devoted to sanitary inspection without detriment to his ordinary police work. So far the employment of policemen as sanitary inspectors has met with considerable success. While yet in the experimental stage there is sufficient evidence already collected to indicate that the problem of sanitary inspection is near its solution. In conclusion the advantages of this method of sanitary inspection may be summarized as follows:

1. More efficient prevention of nuisances and a cleaner and more decent city.
2. Greater efficiency of health department because its activities are no longer restricted to routine inspections.
3. Cooperation between police and health departments—really only a step in the right direction for all municipal departments should be closely co-ordinated.
4. No added cost to city.

This method of sanitary inspection and the resulting advantages are possible only in a city where a well organized police department is maintained.



WANTS FIGURES ON WATER WASTE.

Editor "Domestic Engineering":—I have had some trouble in convincing one of my customers about the large amount of water that is wasted on account of carelessness in not closing faucets, when water is not used, as well as by leaky plumbing. Can you give me some figures that will help me to prove that I am right?

St. Louis, Mo. J. H. F.

Yes, little drops of water dripping from countless faucets, when not in use, make a flood of waste, which costs the country millions of dollars a year, and places a burden on every taxpayer. This loss is, as correspondent implies, due either to carelessness in not closing faucets or to failure to keep them supplied with proper washers. When a washer in a faucet is worn out, it is impossible to shut off the flow of water completely.

The Department of Water Supply of Clarksburg, W. Va., has been studying this problem in a scientific way. The results of its investigations are included in an extremely valuable booklet on "Sanitary Plumbing versus Water Waste," such as every city might profitably issue for the guidance of its citizens in ways of saving water and in the proper observance of sanitary regulations regarding sewers, plumbing, etc.

The Clarksburg water officials estimate that water just dripping through a faucet of the type most commonly used will waste in a day 15 gallons, in a week 105 gallons, and in a year 5,475 gallons. The yearly cost of such a waste in Clarksburg is $1.36. This would be hardly

worth noticing if only one leaky faucet were concerned, but when there are thousands of them it becomes serious.

Water leaking through an aperture 1/32 of an inch in diameter wastes 264 gallons a day, 1,848 gallons a week and 96,360 gallons a year. Five hundred such faucets would mean an annual loss of more than $12,000.

If the aperture in the defective faucet is 1/16 of an inch the water wasted amounts to 835 gallons a day, 5,845 gallons a week and 304,775 gallons a year. The annual loss resulting from 500 such faucets would amount to over $38,000.

If the leakage space is 1/4 of an inch in diameter the annual waste amounts to more than 6,000,000 gallons, worth $1,590. Water leaking through a 3/8 of an inch opening wastes during a year over 14,000,000 gallons valued at $3,618; and through a half-inch opening the annual leakage amounts to more than 5,000,000 gallons or $6,400 worth.

How fast the waste of water runs into money can be seen by taking 1/32 of an inch as the average opening. Ten thousand such leaks, all of which could be put into perfect condition in a short time and with little expense, would allow nearly a quarter of a million dollars' worth of water to run to waste in a year.

All these estimates of the value of the water wasted are based on the cost of water in Clarksburg. In other cities, where the water is brought from a longer distance, or where more expensive water works systems are in use, the figures would be even higher.

These figures should easily prove that correspondent is right, and they are enough to show that to save water should be the duty of every good citizen. The more water wasted the greater the expense to the municipality and the higher the tax rate.

Children and everybody else, who use water should be taught to turn the faucet off tight as soon as they are through with it.

PIPING A HOT WATER HEATING SYSTEM

Editor "Domestic Engineering": The enclosed rough sketch (Fig. 1) shows the layout of a hot water heating system which I am about to install. As I am not well posted in this matter, I would like to have your advice on this job.

I would like to construct this system in such a manner that part or all the heat can be turned off from the office and sent up into the shop, when the office is warm enough.

Would you use four pipes, or more, or less? I can make the coils almost any length. How large a tank would you use? How would you connect it?

The heater is 18 inches in diameter, with 2-inch pipe connections, and I think it is capable of supplying enough heat.

I also need information on another job:

I am to install a range boiler to supply hot water for a bath room upstairs, and that is the only place where they want hot water. Shall I place the boiler upstairs or downstairs near the range stove?

Evansport, O. B. B. F.

Fig. 1 shows the installation referred to in the above communication as sketched by correspondent, and he has the wrong idea as to the method of piping for a hot water system. He evidently intends to show a down-feed system, but has the flow and return transposed.

There are two methods of piping, known as the up-feed and down-feed, either of which is adaptable to this job. The down-feed method is illustrated by Fig. 2. With this method the supply pipe is taken to the top of the system, probably five or six feet above the coil on the second floor, and from the top of the system the expansion line is connected. The pipe then forms a circulating loop,

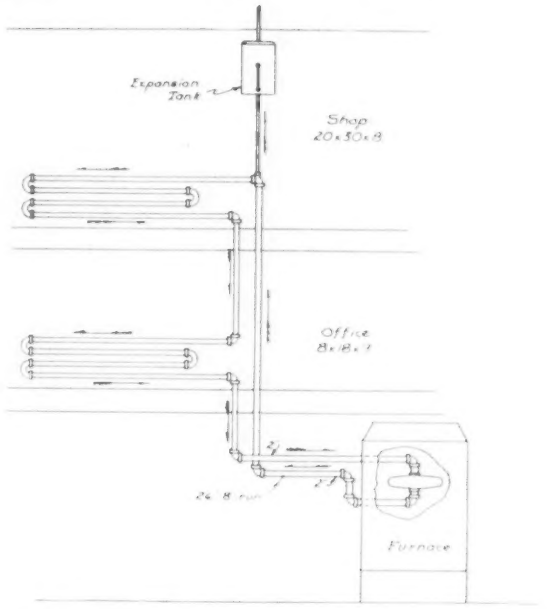


Fig. 1. Correspondent's Sketch, Showing Present Method of Installation.

dropping down parallel to the flow and supplying the coils as shown in the illustration. It is well to continue

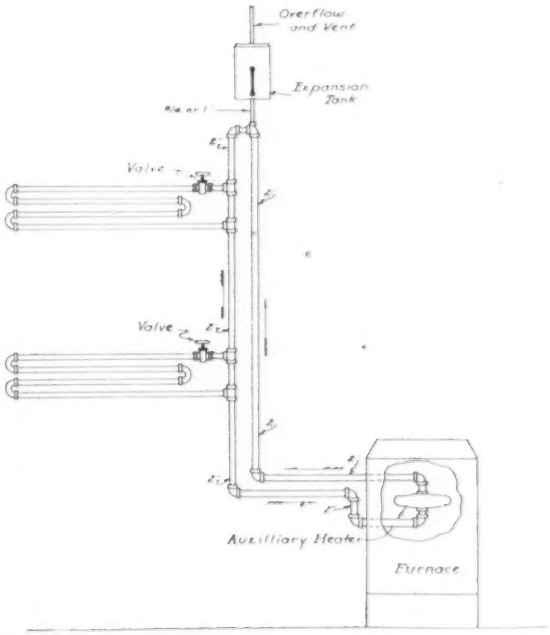


Fig. 2. The "Down Feed" Method, Applied to this Installation.

the circulating supply and return pipe 2 inches in size its entire length. No air valves are required on this style of piping, as, if properly installed, all air will work out of the system through the expansion tank.

The second method, an up-feed system, is shown by

Fig. 3. In this instance the 2-inch flow is run to a point convenient to connect the coil on the first floor and is then reduced to 1½ inches to supply the coil on the second floor. The return is graded to the same size as the flow and, should this method be used, the expansion line should connect into the return at a point near the furnace. Air valves should be placed at the high point of each coil.

Regarding the size of the coils or the amount of radiating surface necessary, correspondent does not give sufficient information to allow us to estimate intelligently. He states on his drawing that the office (first floor) is 8x18x9 feet in size, and the shop (second floor) is 20x30x8 feet. He, however, does not give the number or size of the windows or the square feet of exposed wall; nor does

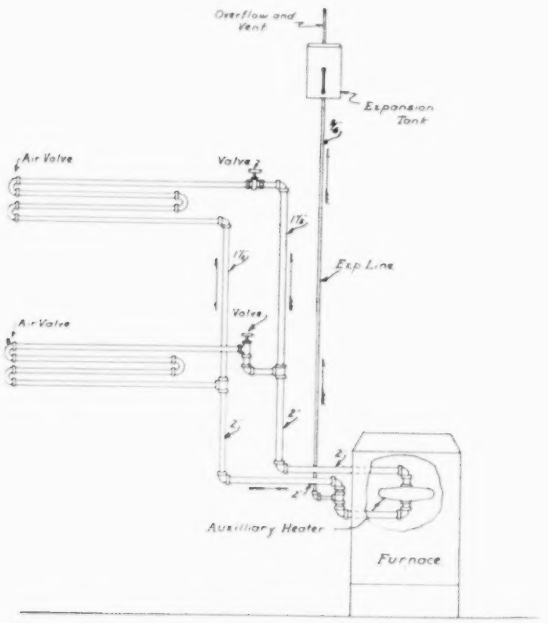


Fig. 3. The "Up-Feed" Method of Connecting Coils and Tank.

he state whether the building is frame, brick or stone, and well or poorly constructed. All of these factors must be known and considered to determine accurately the radiation required.

If each room is only normally exposed and contains an average amount of exposed wall and glass surface, the office will need from 50 to 60 sq. ft. of radiation, requiring a coil containing from 100 to 120 lineal feet of 1½-inch pipe, or from 115 to 138 feet of 1¼-inch pipe, and the shop will require 160 to 180 sq. ft. requiring 320 or 360 lineal feet of 1½-inch pipe, or from 736 to 828 feet of 1¼-inch pipe.

The above is estimated on a 70-degree basis, and, while this temperature will doubtless be wanted in the office, it will not be required in the shop, as a shop temperature of 60 degrees should be sufficient. In this event, the radiation for the shop can be reduced 15 per cent.

If the apparatus is valved as shown by the sketches, Fig. 2 and Fig. 3, either of the coils can be shut off without affecting the circulation to the other.

Replying directly to questions of correspondent would advise that the coils be made of as many pipes or loops as are required to provide the necessary radiating surface. The length of coil will govern the number of loops required. The expansion tank should be of about 10 gallons capacity.

In placing a boiler for domestic water supply, it should be located as near to the range or source of heat as is possible. Better results will be obtained from a boiler located in this manner than from a boiler located in a bath room on the second floor.

PLUMBING INSPECTORS IN TEXAS ADVISE THE STATE ON PLUMBING.

THE State Board of Health of Texas recently asked the plumbing inspectors in that state for information about what a model plumbing ordinance for an average town should provide. A committee representing the plumbing inspectors after due deliberation sent the state the following answer, which will no doubt be of interest to many of "Domestic Engineering's" readers:

To Texas State Board of Health, Austin, Texas.

Gentlemen:—We, the committee of plumbing inspectors, desire to report our findings and study in reply to the following letter addressed to the city plumbing inspectors in this state, dated September 4, 1915:

"In the State of Texas there are as many plumbing ordinances as towns having sewerage systems. Some of them are good, others bad, and others still worse.

"This department is constantly being requested to recommend a 'model' plumbing ordinance for the smaller towns. In order to establish a uniformity and to be able to recommend more intelligently, your opinion, as to what would constitute a 'model' ordinance for the average town in Texas, is desired. You can easily see the necessity of this when you review or look over some of the work that is being installed in our state.

"The question of vents, grease traps, waste lines, is one which needs most careful attention.

"Thanking you in advance for the benefit of your experience in these lines, we are, yours very truly

"State Board of Health,
"Department of Engineering."

Realizing the importance of the above letter in the adoption of a model ordinance:

The relation of good plumbing to good health.

The necessity of protecting the public from poor workmanship and poor material.

That, in order to keep up with the modern trend of plumbing and ventilation,

And, in order to cast more light on the Act as passed by the Twenty-Fifth Legislature known as Senate Bill 164, Chapter 163—"An act to require cities to provide for a board of plumbers to be known as the examining and supervising board of plumbers; to regulate the duties of said board, and to provide penalties for violation hereof,"

And whereas, other State Boards of Health have adopted state plumbing codes, we respectfully recommend as follows:

(1) Publicity by the State Board of Health, such as articles in the Sunday papers.

(2) Exhibiting the best method of installing plumbing at the county fairs; also by car exhibits by the different railroads, this to include stereopticon views, these to be furnished by our committee.

(3) The enforcement of the code to be done by the State Board of their own methods.

(4) Rules to govern the forming of the code to be as follows:

City and county plumbing.

Mercantile and mercantile establishments.

State and county institutions not covered by city ordinance.

All cities and towns over 5,000 inhabitants—extra heavy cast iron pipe.

We recommend that all cities and towns employ some method of registering plumbers and inspections, the examination to cover written and oral, and practice test also by charts.

All cast iron soil pipe used to be heavy, and extend five feet outside of the building line.

The sizes for vents, soil and waste line to be that listed in accompanying code.

We recommend cast iron soil pipe to be used for waste and vent lines.

All drum traps to be trapped against their covers.

Cess pools, biological tanks, and water supply, to be left to the discretion of the State Sanitary Engineer.

After the word "deputies," page 100, insert "By the State Sanitary Engineer," or "By some person authorized by him."

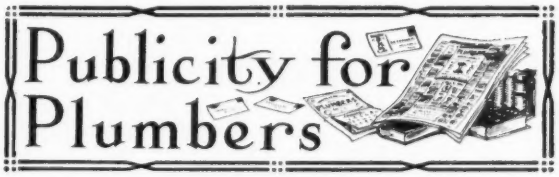
Floor drains acting as a safe waste in bath or toilet room, shall in no case be connected to the sanitary sewer, but must empty on ground or over open fixture.

We recommend that at least one water closet, one sink or slop hopper, one shower or tub, be provided for each family.

We further recommend that before plumbing is figured for state or county institutions, not covered by local plumbing ordinance, the plans and specifications be submitted to the State Sanitary Engineer for approval.

Respectfully submitted,

Austin, Texas. The Committee.



Making the Most of the Movies.

"Domestic Engineering" recently published a suggestion regarding the possibilities of moving-picture advertising. The point was made that the increasing popularity of the photo plays, and the immense audiences which attend the movies, furnish an opportunity to do some effective advertising.

In the article referred to, the simplest form of screen advertising was suggested, namely, the use of slides, with an appropriate illustration and catch-line. These slides may bring fairly good results in some sections, but as a matter of fact, they can hardly be expected to do as good work as the situation warrants one in hoping for.

The reason is not far to seek. When the average person goes to the moving picture theater, it is not for the purpose of looking at advertising signs, but to be entertained. Passing a dime into the box office makes one the proprietor of the screen, as it were, and anything that is shown without contributing to the amusement of the audience, to use a film term, that is not justified by the technical character of the performance, is going to be frowned on.

If the theater proprietor is conservative, and runs only a few slides at each performance, they may "get by" without causing any positive objection on the part of those present. On the other hand, if he finds that he can get business of this kind easily, he is tempted to go the limit, and pick up all of the velvet represented by his advertising revenues that he can. That is human nature, and as a matter of fact, one finds that this is just what is happening in a good many cases.

The writer has been in picture theaters where numerous slides were run between shows, taking up not a very long time, as measured in minutes, but creating an undesirable interruption, a fact which finally manifested itself in hisses on the part of a good many people in the theater. How would you feel, if, instead of making a good impression on the patrons of the movies, your slide was greeted in that way? You might be angry and figure that the ones who hissed were not a desirable class to cater to, anyway; but the point would be made clear that this kind of advertising to picture theater crowds is not calculated to bring the best returns.

Is one to assume, then, that the picture show must be abandoned as an advertising medium? Let us hope not, for the suburban or small-town plumber can easily appreciate the fact that it is his most effective and convenient mode of securing publicity. The one place in the suburb or the small town where one is sure to find most of the people, during the course of the week, is the picture show; and as they attend in their hours of leisure, they may be presumed to have time to give to the consideration of advertising.

The proposition, then, is not one of leaving the movies to their own devices, but of arranging a form of advertising that will get over the guard of the screen "fans," and will make them give your announcement a favorable hearing, or rather, "seeing." And this is something that canaot be done with ordinary slides.

What is the most appropriate kind of advertisement for a moving picture theater? Why, a moving picture film, of course! And there, in a few words, you have the solution of the problem. Put your ad in the form of a film, humorous in character, if possible, but at least scoring a point in favor of your business. It will hit the bull's eye, judging by results secured already, and at the same time will not involve an undue amount of expense.

Films may be had as low as 15 cents a foot, and some advertising stunts have been put over with not more than twenty or thirty feet of film. So it is evident that the cost of the proposition, as compared with the cost of having a slide made, is not prohibitive, and, on the other hand, it ought to be welcomed by the picture theater man, as insuring popularity, instead of unpopularity for his house on account of running advertising matter in between his regular programs.

A "scenario" for an advertising film might be something like this:

Scene One: House with "For Rent" sign in foreground. Real estate man with prospect enters.

Scene Two: Old-fashioned bath room, with antiquated fixtures, shown. Prospect sees it, throws up her hands, and departs.

Scene Three: Real estate man going in office of Jones, the Plumber. (The name of the advertiser would of course be made prominent here.) Crew leave shop, putting tub, pipe and other materials in wagon or automobile, and dashing away at full speed.

Scene Four: Same house, but modern bath room installed. Prospect enters with real estate man, and immediately signs the lease, smiling broadly the while.

Running this film would not take long, and it would not need much length to put it over. It could be worked up with a good deal of "funny stuff," and it has already been amply demonstrated that stunts of this kind get a laugh as readily as anything in the regular pictures. These advertising films, by the way, are usually pro-

duced by means of drawings of the cartoon style, a patented process having been devised whereby the drawn figures are made to move just as in the case of photographs.

To suggest the possibilities of advertising of this kind, the writer recently saw a film advertising an automobile tire concern. The picture shows an automobile running along, and stopping with a "Bang!" as one of the rear tires blows out. Immediately a service car of the advertiser rolls up behind. The tire changer jumps out, with a new tire over his shoulder, runs up, makes the change in a twinkling, and the car rolls away without losing more than a few seconds. This burlesque of tire changing possibilities invariably got a big laugh, and though it was shown for several weeks at theaters all over town, so that presumably many people saw it more than once, it made a hit every time.

"It's the best advertising we ever did," said the head of this concern when asked about the results. "I've heard more from it than from anything else we ever put on."

This sort of advertising is still novel, and its very novelty makes it attractive. For that reason the plumber who takes up the proposition early in the game will not only have the benefit of putting over his advertising to movie audiences in the most effective way, but will get the added prestige of springing something new in his home town.

This article is not a boost for any commercial enterprise, of course, so that it would be out of place to mention names. However, it is in order to suggest that the plumber who is interested in the up-to-date kind of moving picture advertising get in touch with local moving picture exhibitors, and through them get a line on concerns which are making a specialty of this kind of work.

A NEW METHOD FOR COATING IRON OR STEEL WITH LEAD.

A new process of coating iron or steel surfaces with a continuous and uniform film of lead. The object of the process is to provide a substitute for zinc and one less costly than tin for a protective coating. After the iron or steel surface has been cleaned of scale or oxide, it is subjected to a suitable flux, such as zinc chloride, and submerged in a melted bath of lead containing a little cadmium. Ordinary commercial lead possesses but little affinity for iron, but in the presence of metallic cadmium, even in very small quantities, it will amalgamate with the iron surface so as to coat it with a very thin film. In the process, which is the subject of a patent (United States 1,144,523), there is used as small an amount as 0.17 per cent, but there can be used as high as 1 per cent of cadmium. The smallest possible amount is recommended, as cadmium is expensive. Since it tends to oxidize and pass into the flux, causing a loss, the addition of about ½ per cent of zinc to the lead bath prevents this, as the zinc oxidizes first and passes into the flux in preference to the cadmium. Cadmium, being more positive than iron, its presence in the lead tends to protect the iron the same as zinc. It also is claimed to promote and subsequently maintain the adherence of the film of lead.

Allegan, Mich.—H. J. Whitcomb has moved his plumbing establishment from the Weber Building to the McDuffee Block.

Long Branch, N. J.—Taylor & Layton, of this city, have purchased the plumbing business of Chester N. Wainright, at Sea Bright, N. J.

ANXIOUS TO TAKE A BATH "SOMEWHERE IN SERBIA."

After a city has been bombarded by shells of powerful caliber, the architectural beauty of the streets is considerably marred, and things both useful and ornamental are in a state of chaos. Robert Minor, an American war correspondent, realized the truth of this upon arriving in a city "somewhere in Serbia." In one of his articles from the front, he writes: "I had hoped to take a bath here, but a German 'obus' (shell) got there before me!" The accompanying sketch shows the scene that confronted

"A Shell Struck the Bath, Before He Did."

the war correspondent in that certain city in the war zone. He is sadly contemplating a bathtub in which he had hoped to cleanse himself after an arduous journey through this battle-swept country. He looks like a Serbian plumber deploring the fate of a tub he had installed.

Timely Poetry.

I have a rather stubborn cold
And life seems all awry.
But everything of which I'm told
I try.

The list assumes a goodly range;
I hope to better get.
And have I noticed any change?
Not yet.

But still I do what I am told;
Give ear to all the chaps.
Eventually I'll cure that cold,
Perhaps.

—Louisville Courier-Journal

LEGAL DECISIONS

Rights of Seller When Buyer Attempts to Countermand Accepted Order.

Ordinarily, when an order has been accepted and a contract completed, if the buyer thereafter undertakes to repudiate the order, any of three remedies is available to the seller: (1) He may retain the property for the buyer and recover the purchase price; or (2) keep it as his own and sue for the difference between the market value and the contract price; or (3) he may sell the property for the highest price he can get and recover the balance of the purchase price. In order to recover the purchase price, however, everything required of the seller to pass title must have been performed. The theory on which recovery of the purchase price is allowed notwithstanding the buyer's repudiation of the contract is that by performance on his part the seller has vested title in the buyer, possession being retained by the seller for him, and for this reason the latter is entitled to the purchase price. To permit the vendor to retain title and recover the purchase price would be intolerable. So says the Supreme Court of Iowa, in Pate vs. Ralston, 139 Northwestern Reporter, 906, where it further declares that the fact that the buyer in countermanding the order said he declined to receive the things and that shipping would be at the seller's risk would not obviate the necessity of delivery at the time stipulated if the seller insisted on performance of the contract. Of course, the rule would be otherwise were the countermand treated as a breach of the agreement and recovery of damages only sought.

Distinctions Between Sales and Contracts of Sale and Rules Governing Them.

The distinction between an actual sale and a mere executory contract of sale, or agreement to sell yet to be performed, is quite marked, the Supreme Court of Oklahoma says, in Brooks vs. Tyner, 132 Pacific Reporter, 683. In a sale the thing which is the subject of the contract becomes the property of the buyer the moment the contract is concluded, and without regard to the fact whether the goods be delivered to the buyer or remain in possession of the seller; whereas, in an executory agreement the goods remain the property of the seller until the contract is executed. This distinction is of importance in two connections. First, as between the parties to the contract in order to determine upon whom the loss shall fall in case the property is destroyed; and, second, in order to know what rights creditors or subsequent purchasers of one party may acquire as against the other.

The rule is that, if, under a contract for the sale of specific goods, the seller is bound to do something to the goods for the purpose of putting them in a deliverable state, that is, into a condition in which the buyer is bound to accept them, unless a different intention appears, the property does not pass until such thing is done; as where trees are to be trimmed, cotton to be ginned and baled fish to be dried, crops to be gathered or threshed, cattle to be fattened, hops to be baled, machinery to be set up, or lumber to be sawed or placed, the doing of such thing is presumptively a condition precedent to the transfer of property.

Under an executory agreement until the act is performed, or the condition fulfilled which is necessary to convert the executory into an executed contract, no title passes to the buyer as against the seller or persons claiming under him. In the case of an executory agreement as the proposed purchaser does not become the owner of the goods he cannot claim them specifically; he is not the sufferer if they are lost and cannot maintain trover for them, and has at common law no other remedy for the breach of contract, than an action for damages.

After an executory contract has been made, it may be converted into a complete bargain and sale by specifying the goods to which the contract is to attach, or, in legal phrase, by the appropriation of specific goods to the contract. The sole element deficient in a perfect sale is thus supplied. The contract has been made in two successive stages instead of being completed at one time, but is none the less one contract, viz., a bargain and sale of goods. The selection of the goods by the one party and the adoption of that act by the other converts that which was before a mere agreement to sell into an actual sale, and the property thereby passes.

Where the portion of the mass or lot which is the subject of the contract is designated in such a manner as to make it easily distinguishable from that with which it is mixed, no other separation or appropriation is necessary to render the contract complete and to pass the title. The delivery of the whole mass to the purchaser for the purpose of enabling him to separate the part sold, passes title of that part before actual separation has been made.

Effect of Certification of Checks.

If the holder or payee of a check procures the certification of the same by the bank on which it is drawn, the drawer of the check is released from further liability thereon. The contract between the maker and the payee of the check is that the latter shall be entitled to payment upon presentation of the check to the bank upon which it is drawn, and not that the payee may accept the bank's certification in lieu of immediate payment. When the payee, instead of insisting upon immediate payment, causes the check to be certified, he in effect causes the funds to be withdrawn from the control of the maker, and leaves them with the bank for his own accommodation. Such certification operates substantially as a certificate of deposit in favor of the payee, and the law treats his act in obtaining it as a discharge of the drawer. Where, however, the drawer causes the check to be certified before delivery, the same reason does not exist for holding him discharged from liability. The certification under such circumstances, the Second Appellate Division of the Supereme Court of New York holds, in Davenport vs. Palmer, 137 New York Supplement, 796, merely operates as an assurance that the check is genuine and the certifying bank becomes bound with the drawer.

His Choice.

Le Captain: "You may have one wish gratified before you die."

L'Espion: "May I choose the place in which I shall be shot?"

Le Captain: "Certainement."

L'Espion: "I wish—I wish to be shot in the arm."—Widow.

Men Who Should Not Be in the Plumbing Business

By G. W. HILL

THERE can be no question but that there are men entering business every day, who never ought to be in business, never should seek positions of responsibility or positions where they are compelled to depend upon themselves, unaided by others. Many of this class are found in the mechanical contracting business because of the ease with which men are permitted to enter it. It is a foregone conclusion that in order to become a master plumber, one should have both a practical and technical training and many, who gain this knowledge, do so to the exclusion of a most important factor in business, that of a thorough business training. Many men follow the trade of journeyman plumber until they have reached middle age, when the possibilities of gaining a thorough business training is beyond their reach, owing oftentimes to added responsibilities which come with age and which prevent them from gaining a knowledge such as makes for success in business.

No one should attempt to prevent men who are duly qualified, from attaining the ambition which is in the breast of every man, to become his own master, to own and conduct a business which carries with it the possibilities of eventually becoming an influential and prosperous business man. I contend that it would be a truly benevolent act, if those could be prevented from entering business, who are unprepared and without the slightest possibility of success. They should at least be discouraged. Such discouragement in many instances would not only be for the good of the community but a god-send to the jobber and manufacturer, who, owing to the gambling instinct which we all possess to a greater or lesser degree, take one more chance and extend credit to those who do not have one chance in a million of making a success, and who are wholly unfit to shoulder the responsibilities which a business man owes to the community, to his competitors, his creditors and others, who may from choice or force of circumstances be drawn into business dealings with such an untrained, unfortunate, nevertheless well-meaning individual.

I am of the opinion that our bankruptcy laws contemplate this sort of discouragement as they set up certain restrictions in cases where men have demonstrated that they are hopelessly incompetent to manage a business for themselves.

The point I wish to make is this, that if it were made a little more difficult for men to enter the plumbing business there would certainly be fewer failures.

I contend that, if the plumbing business is ever to reach the height to which other business enterprises have climbed, there must be more of a tendency on the part of the plumber, the jobber and the manufacturer to adopt some definite constructive policy. This can only be done by the combined efforts of all interested. No doubt many will say that this is another consignment of co-operation dope, but, nevertheless, no business or profession ever gained eminence or did humanity any good without the hearty co-operation of all allied interests.

The sooner the truth about the plumbing business is realized the sooner we may have hopes that eventually men will make enough money during their productive years to at least have the comforts of life during their declining ones.

Important Questions.

Here are a few questions to the man who is about to enter the plumbing business or who has entered it:

Have you a thorough practical knowledge of the business?

Have you a thorough technical knowledge of the business?

Do you know how to keep a commercial set of books intelligently, or are you able to employ a competent bookkeeper?

If not, you are absolutely as unfit to enter business as a patient of an insane asylum.

Do you realize that the capital, which you may lose in case of failure, is in many cases much more than your own, which you originally invested in the business?

Do you know that, unless you do a fairly good-sized business and have a thorough business training, you would make more money working for someone else, who has business ability?

Do you know the different items in business, which enter into the overhead cost? If not, you may be losing money and not know it for some time.

Do you know whether freight and drayage should be added to the cost of merchandise or entered among your overhead items?

If you buy a wagon for $120, and you, from your experience or the experience of others, know that this wagon is only good for ten years' service, you have an item of depreciation, or overhead, of $12 per year or $1 per month.

In case your place of business should burn tonight, could you find your books in the safe, and, if so, could you tell the insurance adjuster the value of merchandise the night the fire occurred? If not, he would tell you how much his company would allow you.

Can you produce a financial statement from your books, showing your creditors where you stand in the business world? If not, do not ask for further credit. They may refuse you for that reason. Be careful not to allow your creditors to find out that you are at sea.

Did you ever hear of a sea captain taking a great vessel to mid-ocean without instruments to guide his course? You would consider this a most dangerous thing to do.

If you have not a simple, yet comprehensive, bookkeeping system to guide your course, you are just as foolish as such a captain and in just as much danger of going on the rocks and having your business dashed to pieces, on the rugged coast of bankruptcy.

Can you tell John Smith on a moment's notice, by reference to your records, whether or not you could duplicate a job done for him six months ago for the same amount of money? If not, don't let him find this out; his memory may be better than yours.

Do you know that, if you were to do a gross business of $2,000 per month, and your overhead cost is $500 or 25 per cent of the gross business, you should not apply the 25 per cent to the cost of labor and material in

estimating? For if you do, you will lose $200 per month.

If your overhead is 25 per cent of the gross business you must add about 42 per cent to your costs in order to get it back.

Do you know that in a number of 1,000 master plumbers there are about 950 who fail in business, and that about 70 per cent of these failures are due to lack of knowledge of cost and a proper bookkeeping system?

Do you know that, if a man is incapable of appreciating the difference between a gross profit and a net profit and of understanding the various ways in which an apparently magnificent gross profit is whittled down to a miserable inadequate net profit or eventually to a minus quantity, his aspirations ought never to raise above a weekly wage?

Do you know that, unless you conduct your business along well-defined business lines, having a thorough knowledge of all phases of the business, you will eventually sink back to your former position?

Do you know that the standard of fitness is rated too low in the plumbing business, and this is the main reason why there are so many business failures?

If the prizes were made more difficult to attain, there would be greater effort.

Where nature is most lavish, men are most lazy. Where a square meal can be obtained by stretching the arm, there seems to be no incentive to stretch the mind to grasp a principle or an idea.

Northfield, Vt.—C. O. Osha has opened an up-to-date plumbing establishment here.

Junction City, Ore.—Hurburt & Sims have opened a plumbing business in this city.

Chicago, Ill.—O. Christensen Plumbing Co. has been incorporated with a capital of $2,500. The incorporators are: Charles Strumil, A. Christensen and Edward H. Kubitz.

Marengo, Iowa.—J. J. Donohoe and J. W. Creech have formed a partnership under the name of Donohoe & Creech and have purchased the Lamprecht Plumbing & Heating Co.'s business and stock in this town.

New York, N. Y.—The John E. Weit Co. has been incorporated with a capital of $5,000, to conduct a plumbing and heating business. The incorporators are: Harold E. Lanbinger, Mathilda Meon and John E. Weit, all of 885 Stebbins Avenue.

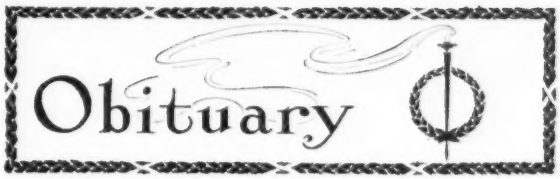
NEW PUBLIC COMFORT STATIONS.

Plans have been prepared for the construction of a public comfort station in Porter Park, Niagara Falls, N. Y.

The city council in Ogden, Utah, has decided to have a public comfort station constructed at the corner of Hudson Avenue and Twenty-Fifth Street, in that city.

Efforts are being made to have a public comfort station constructed in the Wilbur section of Trenton, N. J.

A public comfort station is being constructed in Lincoln Park, Tacoma, Wash. The Wm. B. Coffee Plumbing Co., of that city, is doing the plumbing.



Thomas A. Blackmore.

Thomas A. Blackmore, a master plumber of Ogden, Utah, died from Bright's disease while on a visit to Deer Lodge, Mont., on Monday, November 29th, in his 56th year. His wife, nine children and nine grandchildren survive him.

C. W. Bauer.

C. W. Bauer, founder and senior member of the plumbing firm of C. W. Bauer & Son, Louisville, Ky., died of heart disease, on Thursday, December 2nd, after three weeks' illness. His wife, one son and three daughters survive him.

John C. Beyer.

John C. Beyer, who conducted a plumbing establishment at 605 Bourbon Street, New Orleans, La., died at his home in that city on Thursday afternoon, November 25th, in his 45th year. Mr. Beyer was a successful plumber and he owned several fine residences at the time of his death. He was a member of the New Orleans Master Plumbers' Association. His wife and three children survive him.

FINANCIAL TROUBLES.

Manitowoc, Wis.—A petition in involuntary bankruptcy has been filed against Trippler Bros., heating contractors in this city.

Emporia, Va.—C. L. Broadwell, a plumbing contractor in this city, has filed a petition in bankruptcy, scheduling his liabilities at $4,925.25 and his assets at $8,343.89.

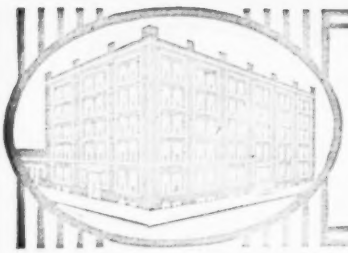
Dayton, O.—Thomas E. Dunlevy, of 727 West Fifth Street, has filed a voluntary petition in bankruptcy, scheduling his liabilities at $5,580.95 and his assets at $1,932.10.

Manchester, Conn.—The plumbing firm of Jones Bros., composed of Thomas A. Jones and Edward J. Jones, has filed a petition in bankruptcy, scheduling its liabilities at $3,267, and its assets at $1,140.

Auburn, N. Y.—Wm. R. Moss, a plumbing contractor, who resides in this city, and conducted a plumbing business in Syracuse, has filed a voluntary petition in bankruptcy. He scheduled his liabilities at $5,846, and his assets at $1,581.

January 25, 26 and 27, 1916.—Annual convention of the Illinois Master Plumbers' Association, at Peoria, Ill., with headquarters at the Jefferson Hotel.

February 8, 9 and 10, 1916.—Annual convention of the Ohio Master Plumbers' Association, at Columbus, O., with headquarters at the Virginia Hotel.



Among the Wholesalers and Manufacturers

COMPANIES RECENTLY INCORPORATED.

The Sanitary Supplies Co., of Boston, Mass., has just been incorporated to deal in plumbing specialties. The officers of the company are: A. E. Burns, president; Ralph N. Butterworth, treasurer; and T. D. Luce, Jr., secretary.

The Standard Rotary Valve Co., of Pittsfield, Mass., has been incorporated to manufacture heating specialties. The officers of the company are: J. H. D. Beaucage, president; Earl C. Jacobs, treasurer; and S. Smith, secretary.

The Nelson Blower & Furnace Co., of Boston, Mass., has been incorporated to manufacture heating and ventilating systems. The company's officers are: A. H. Nelson, president; William R. Marshall, treasurer; and F. Batchelder, secretary.

FILE PETITION AGAINST COLUMBIA BRASS CO.

A petition in involuntary bankruptcy has been filed by creditors against the Columbia Brass Co., of 60 Washington Boulevard, Detroit, Mich.

GOLD MEDAL AWARDED SELF-RAISING SEAT.

The Jury of Awards at the Panama-Pacific Exposition at San Francisco, gave the highest award and gold medal to William S. Emery, of New York City, for the Emery self-raising closet seat.

THE DECEMBER MEETING OF THE ILLINOIS CHAPTER OF A. S. H. & V. E.

The regular monthly meeting of the Illinois Chapter of the American Society of Heating and Ventilating Engineers will be held on the parlor floor in the Morrison Hotel, in Chicago, on Monday evening, December 13th, at 6:20 o'clock. Secretary W. L. Bronaugh announces that a topic of interest to members will be provided.

WATER SUPPLY AND SEWER SYSTEMS FOR GREEK CITIES.

United States Consul General Alexander W. Weddell, of Athens, Greece, reports that it is officially stated that bids for the construction of a water supply system and a sewer system for the cities of Athens and Piraeus, Greece, will be examined and awards made on January 2, 1916. The opening of bids for this work has been postponed from time to time during the past year.

ANNUAL DINNER OF CENTRAL FOUNDRY COMPANY.

The Central Foundry Co., of New York, held its sixth annual dinner at the Hotel Knickerbocker in that city on Saturday evening, December 4th. There were sixty-four present representing the various branches of the company's offices. Following a de luxe menu, discussion and story telling occupied the remaining hours of the evening at the Knickerbocker.

As a souvenir of the occasion each guest was presented with a silver pocket knife. The menu follows:

Blue Point Oyster Cocktail.

Cocktail. Creme Ambassadrue. Olives. Celeri. Amandes.

Sauterns. Filet de Sea Bass. Bonne Femme

Tournedos a la Jardiniere.

Marquise Glacee aux Liqueurs.

St. Estephe. Chapon Roti. Cressonniere.

Salade My Fancy.

Parfait a la Parisienne.

Liqueur. Petits Fours.

Moka.

Those in attendance were: Waddill Catchings, president; de Courcey Cleveland, vice-president; C. C. Todd, second vice-president; R. R. Rust, secretary; W. G. Angell, W. S. Adelman, C. A. Burke, W. E. Batey, Robert P. Black, Eugene Belz, Walter Blaine, C. R. Brown, W. M. Crawford, T. A. Cornwall, M. A. Clark, R. W. Conrow, W. A. Crotty, F. P. Crotty, J. J. Crotty, H. Y. Carson, R. A. De Leon, W. Dingledein, J. P. Donohue, Leo E. Desmond, R. C. Engels, W. H. Feltt, LeRoy Fisher, C. A. Fossum, J. A. Ferris, F. G. Griffiths, Norman Henderson, William Henderson, Frank Haber, H. J. Hoeltge, C. K. Hawkins, C. E. Harris, G. B. Hall, Frank Johnson, A. Johnson, J. Kitchen, George Klee, Charles Kessler, C. Kyle, E. B. MacDonald, Sam Morris, John Mahon, J. Miller, E. Mitchell, Sigurd Oors, William Ohmsieder, E. P. Pfeil, B. Parker, A. Ritchie, S. Root, Fred Ritter, Hall Rahe, C. M. Reed, L. Smalls, W. H. Starke, Joseph Shuck, C. Schubel, C. E. Slocum, F. F. Suehle and Harold C. Waterman.

BUILDING OPERATIONS FOR NOVEMBER.

Building operations for November make an excellent showing for the year to date. Official reports received by the "American Contractor," New York, from 71 cities, show building permits issued for the month to amount to $60,129,378, as compared with $34,342,475 for November last year, an increase of 75 per cent. While there are losses in a few of the cities, most of the larger cities show tremendous gains. Following are the details for November, 1915, as compared with November, 1914:

	Nov., 1915	Nov., 1914	Per Cent Gain	Per Cent Loss
Akron	$ 535,105	$ 179,395	198	
Albany	588,305	301,578	95	
Atlanta	284,647	232,104	23	
Baltimore	690,478	274,980	151	
Birmingham	121,904	76,710	59	
Boston	3,035,573	1,366,778	122	
Buffalo	788,000	498,000	58	
Cedar Rapids	119,000	250,000		52
Chattanooga	53,532	28,258	89	
Chicago	10,861,600	6,513,150	67	
Cincinnati	790,965	336,210	135	

Cleveland	2,434,715	2,153,645	13	....
Columbus	347,350	377,385	.....	7
Dallas	269,498	133,850	101	....
Dayton	131,075	53,625	144	....
Denver	312,085	134,410	132	....
Des Moines	125,070	93,302	34	....
Detroit	3,482,680	1,103,580	215	....
Duluth	204,371	189,510	8	....
East Orange	89,018	79,605	12	....
Ft. Wayne	163,525	100,975	62	....
Grand Rapids	335,325	171,425	96	....
Harrisburg	84,375	34,000	148	....
Hartford	707,709	399,385	77	....
Indianapolis	438,823	265,190	65	....
Kansas City	724,115	341,220	112	....
Lincoln	186,705	39,475	373	....
Los Angeles	1,000,239	785,316	27	....
Louisville	246,030	151,600	62	....
Manchester	111,898	87,665	28	....
Memphis	191,485	133,275	44	....
Milwaukee	1,123,925	643,888	74	....
Minneapolis	1,539,225	703,615	119	....
Nashville	108,665	33,655	223	....
Newark	641,385	373,627	72	....
New Haven	966,080	315,755	206	....
New Orleans	156,551	69,632	125	....
New York City	14,241,740	5,403,693	163	....
Manhattan	4,601,215	2,058,244	123	....
Bronx	3,355,038	448,013	649	....
Brooklyn	4,282,576	1,617,445	165	....
Borough of—				
Queens	1,760,389	1,148,586	52	....
Richmond	242,522	131,405	84	....
Oakland	455,460	281,769	62	....
Oklahoma	99,765	1,509,915	.....	93
Omaha	656,075	133,583	391	....
Paterson	149,585	46,961	218	....
Peoria	197,575	605,200	.....	67
Philadelphia	2,408,665	1,240,530	94	....
Pittsburgh	663,312	777,368	.....	15
Portland	210,595	453,830	.....	53
Richmond	275,251	130,638	111	....
Rochester	817,254	397,830	105	....
St. Joseph	64,819	36,410	78	....
St. Louis	782,943	650,029	20	....
St. Paul	619,701	710,697	.....	14
Salt Lake City	136,705	171,860	.....	9
San Antonio	127,340	210,575	.....	39
Schenectady	60,425	76,385	.....	20
Scranton	322,164	88,852	262	....
Seattle	798,810	229,615	248	....
Shreveport	55,683	77,764	.....	28
Sioux City	194,297	84,477	130	....
South Bend	77,300	16,275	375	....
Spokane	46,475	55,700	.....	16
Springfield, Ill.	147,145	55,100	167	....
Syracuse	608,324	235,365	158	....
Tacoma	75,465	270,655	.....	109
Toledo	535,755	276,676	94	....
Topeka	69,650	35,105	98	....
Troy	70,735	37,450	89	....
Utica, N. Y.	151,035	96,300	57	....
Washington	594,925	419,544	42	....
Wilkes-Barre	48,535	76,493	.....	36
Worcester	354,839	424,124	.....	16
Total	$60,129,378	$34,342,475	75	....

POINTS WAY TO BETTER AMERICAN PACKING.

Considerable evidence of bad packing on the part of American exporters is often seen here, writes United States Commercial Attache Julian H. Arnold, of the American Legation at Peking, China. Machinery has arrived in Shanghai with parts broken on account of careless packing. I have myself received furniture from American manufacturers in a most dilapidated condition on account of the packing. All our consuls in China have probably had specific instances brought to their attention.

There is one phase of American packing for foreign shipment which does not seem to have been included in criticisms directed against American shippers. Perhaps, instead of using the expression "bad packing," it would be better to say "unintelligent packing," for there have been numerous instances in which goods were packed too well, involving unnecessary expense. For instance, recently in Shanghai, American hardware-trade possibilties were investigated, and several dealers said that much American hardware came to China packed too well, materially increasing the cost of the goods in this market.

Some articles which would carry easily without any chance of breakage were packed like glassware. Packing boxes were placed within packing boxes, adding to the freight charges.

In several instances American manufacturers and exporters have taken the liberty of adding charges for crates and packing without much consideration for the proportionate cost which these items bear to the articles shipped. One big American concern, which has a very extensive trade throughout the Orient, is credited with being extremely careful in regard to its packing, but is criticized because its added charges for crates and packing are disproportionately high.

I would suggest that American shippers place in packages shipped a printed slip calling for comments from the consignees on the packing of the parcels received by them, and in this way, in course of time, they will probably receive valuable suggestions. The only way to overcome this criticism is to understand wherein the fault lies in each specific instance.

James F. Conran, sales manager of the Standard Sanitary Manufacturing Co., of Pittsburgh, Pa., was in Chicago this week, visiting the company's local offices.

C. W. Wanger, president of the Woodward & Wanger Co., Philadelphia, visited Akron, O., this week, where he was met by the company's central states representative, O. N. Fischer.

R. M. Staekhouse, C. S. Pitkin, John McDonald and C. D. Little, all of Chicago, at the Fall Tournament of the Western Trade Golf Association.

Jim Barber, traveling for the Rund Mfg. Co., of Pittsburgh, Pa., contracted to teach John F. Klein, master plumber, of Akron, O., the ancient game of pool last Tuesday. Klein says Jim may be an expert on water heaters, but pool is a different thing again.

Some people cross the ocean as apostles of peace while Frank Noss travels across the country as an apostle of the Royal Brass Mfg. Co., of Cleveland, in search of a

piece of business for his company. Frank's neutral smile was seen in Kansas City, Mo., this week.

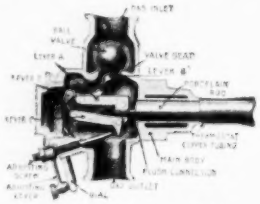
V. M. Wellman, who was until recently connected with the Royal Brass Mfg. Co., of Cleveland, O., as secretary and manager of sales, has recently become interested in the Superior Vacuum Heating & Pump Co., of Cleveland, O., and now carries the title of treasurer and general sales manager of that company.

THE M'RAE & ROBERTS CO.'S CATALOGUE.

The McRae & Roberts Co., of 211-235 Campbell Avenue, Detroit, Mich., has issued its "Catalogue No. 11" in the form of a well-bound book, of 456 pages, 6 by 9 inches in size, illustrating and describing the company's large line of brass goods for steam, water and gas. The book, which represents a large expenditure on the part of the company in whose interest it has been published, will prove a most valuable addition to the trade library of plumbing and heating contractors, and it can be obtained from the company upon request, mentioning "Domestic Engineering."

THE YODER THERMO VALVE.

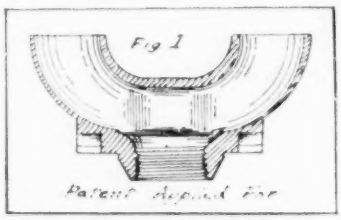
The accompanying illustration shows a sectional view of the Yoder Thermo valve, manufactured by the Yoder-Thomas Mfg. Co., whose offices are located at 1024 Engineers Bldg., Cleveland, O., and factory at 5125 Euclid Avenue in that city. This valve is described as having no stuffing box through which the gas can leak, no valve stem to pack or to stick when packed too tight. It is simple in construction, easy to install to any gas water heater and easy to regulate. Another feature, which the manufacturers consider a most important one, is this, that its levers are internal and offer the minimum of resistance to thermostatic action. Interested parties, who do not yet know this valve, can obtain full particulars from the above-named company upon request, mentioning "Domestic Engineering."



The Yoder Thermo Valve.

THE WESSELS UNIVERSAL OUTLET.

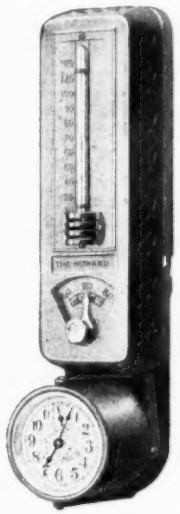
The accompanying illustration shows the Wessels universal outlet for laundry tubs, recently placed on the market by D. D. Wessels, of 1385 East Seventeenth Street, Cleveland, Ohio. This outlet makes it possible to use either one or the other of two methods in making waste connections to laundry trays. Its external shape has not been changed, making it possible to adopt the usual lead pipe connection, a ring fastening the collar to the cone of the outlet. The internal part of the outlet is threaded so that the new method, the iron pipe connection, can be used without the addition of extra fittings. The object of this outlet is to provide a universal drain connection that is adaptable to either lead pipe or iron pipe plumbing. The manufacturer is of the opinion that the most valuable feature of this outlet is its adaptability to either connection, and he will be glad to send interested parties complete information upon request, mentioning "Domestic Engineering."



The Wessels Universal Outlet.

THE "HOWARD" ELECTRIC HEAT REGULATOR.

The manufacture of the "Howard" electric heat regulating devices will be continued by the Howard Thermostat Co., of Oswego, N. Y., which was recently reorganized under new management. A neat folder, illustrating and describing the company's product, has just been issued, from which we take the following description of the "Howard" electric heat regulator shown herewith: "This device properly installed will absolutely control the inside temperature regardless of outdoor weather conditions or variations. The pointer on the thermostat is set for the day or night temperature desired, and the regulator automatically secures and holds the indicated temperature. The thermostat is usually mounted in one of the living rooms at a height of about five feet from the floor. This brass-finished instrument about 2 inches wide and 10 inches long, is fastened to the wall quickly and without marring the finish, and all wires are concealed. The motor and other accessories are located in the basement near the heating plant. The front draft, back draft and chimney drafts are never touched by hand, all being controlled and operated automatically by means of the thermostat located in the living room. A change of one degree in temperature, up or down, will cause the device to operate, either opening or closing the dampers as required. These regulators are used on hot water boilers, steam boilers, hot air and combination furnaces and other heating systems, irrespective of the kind of fuel used." Parties interested in heat regulation can secure this folder from the above-named company upon request, mentioning "Domestic Engineering."



"Howard" Heat Regulator.

The Metal Market

Iron and Steel.

The falling off in the demand for steel to enter into the manufacture of shells and the expansion of orders for domestic consumption becomes more marked as the year draws toward a close. Steel shell business is still large, but not anywhere near to the business taken in the third quarter of the year. England and France have undoubtedly made arrangements to use every available facility for the manufacture of munition, which accounts for the falling off in the demand for billets, bars and rounds. This condition is desirable at present as manufacturers can now turn their facilities to domestic requirements. Railroad business

continues to hold the chief position in the domestic steel demand. Orders for rails, cars and locomotives are continuing on a large scale. The Pennsylvania Railroad is again in the market for cars. During the past week the car orders amounted to 4,914. Orders for 60,000 tons of rails were also booked. Unusual activity developed in the West in structural business. Lettings in structural steel last week totaled 24,145 tons. New high prices for pig iron were reached this week when foundry iron sold at $20, Buffalo with Eastern Pennsylvania furnaces doing some business at that figure The high prices do not appear to effect a falling off in the demand but there has developed pressure for last half contracts from many consumers who are willing to pay premiums over first half prices rather than face the possibility of marked increases over first half prices along in May of next year. Furnaces are not encouraging business covering last half. The International Steam Pump Co. put out an inquiry for 15,000 tons of foundry grades for last half delivery. Furnaces were asked in submitting figures to give a price for first half delivery also and it is understood that practically all of the furnaces quoting submitted first half prices only. The shortage in cars has been accentuated by the tieup of 60,000 cars in railroad terminals due to a glut of export freight moving to the seaboard. Many furnaces are finding it difficult to get regular supplies of coke, and one stack in New Jersey had to be banked until sufficient supplies of fuel are secured. Quotations are as follows:

No. 2X Northern Foundry, New York	$17.75 to $18.25
No. 2X Northern Foundry, Buffalo	17.50 to 18.00
No. 2X Southern Foundry, Birmingham	14.00 to 14.50
No. 2X Southern Foundry, Cincinnati	16.90 to 17.40
No. 2 Southern Ohio Coke, Cincinnati	15.00 to 15.50
No. 2X Northern Foundry, Chicago	18.00 to 18.50

Copper.

Lower prices resulted in the copper market due to a sudden stop in the buying movement which has been going on for some time. The leading selling agencies still maintain the 20 cents level, although there is no telling but that even the important first hands might take business this week at less than 20 cents. The inventory period is approaching and is no doubt a factor in the halt in buying. Buying for export ceased, but shipments on previous sales are going forward on a good scale. Almost 20,000 tons were exported in November from Atlantic ports. High freight rates are a disconcerning factor too, especially on copper bought some time ago.

Tin.

Weakness continued in tin, due to a lack of support and the market declined steadily. The statistics for November were disappointing in that instead of being a factor that would induce a renewal of buying they proved to be of a nature that will induce buyers to refrain from entering the market. Shipments from the Straits in November totaled 6,713 tons, most of which being for the United States, while deliveries were small, amounting to 2,975 tons. Spot tin opened the week at 40¾ cents and declined to 38¼ cents on Thursday and reacted on Friday, selling up to 39 cents, at which it closed.

Lead.

The market in lead was dull during the entire week. Outside interests made efforts to induce buying, by making concessions from the price of the leading interest. Spot at New York was quoted at the close at 5¼ cents and 5.15 at East St. Louis.

Spelter.

Spelter also broke sharply because of the withdrawal of consumers from the market after the 18 cents level had been reached. Many consumers bought on the upward movement which reflected manipulation, although the output is not to be increased at present. Spot at New York was quoted at 17 cents at the close and 16¾ cents, East St. Louis.

Old Metals.

New York dealers' buying prices, per 100 pounds, are all nominal as follows:

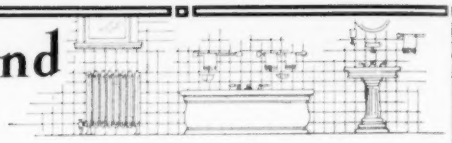
Strictly crucible copper	$16.50 to $17.00
Light copper	14.25 to 14.50
Uncrucibled heavy copper	16.00 to 16.25
Uncrucibled copper wire	16.00 to 16.25
No. 1 machine composition	13.00 to 13.25
Heavy brass	10.75 to 11.00
No. 1 composition turnings	12.00 to 12.50
No. 1 brass clippings	12.50 to 13.00
No. 1 brass turnings	11.00 to 11.50
Cocks and faucets	11.00 to 11.50
Light brass	9.00 to 9.25
Solder joints	8.00 to 8.50
Heavy lead	4.50 to 4.60
Tea lead	3.75 to 4.00
Zinc scrap	11.00 to 11.50
New zinc scrap	12.00 to 12.50
Block tin pipe	34.00 to 35.00

THE PRODUCTION OF COPPER IN JAPAN.

United States Vice Consul General Harold C. Huggins, of Yokohama, Japan, reports that according to statistics obtained from unofficial sources, the total production of copper in Japan during 1914 was 72,119 tons, or 64,619 tons from the mines and 7,500 tons from independent smelters. These "independent smelters" procure their metal from small mines not in a position to smelt for themselves and also from the purchase of old copper and brass, which they resmelt. Copper, standing sixth in the order of importance of exports from Japan, is one of the most valuable natural products of this country. Deposits of copper are to be found in all parts of the Empire and the great mining companies are gradually securing control of smaller mines, opening new ventures, and perfecting the equipment of their plants already in operation by introducing modern methods of ore extraction, building high-efficiency smelters, and protecting themselves from the loss formerly caused by damage done to plant and animal life in the neighborhood of the extracting plants by adopting modern safety measures to prevent the escape of poisonous gases in the process of reduction. As a consequence production has been increasing steadily for years past. The year 1914, however, was an exceptional one, owing to the closing of small plants throughout the country, caused by the financial depression resulting from the outbreak of the European war. Recently the district in which the Ashio mine (the greatest copper mine in Japan) is located has been opened by the building of a branch line to the Central Railway (Government line). This makes the shipping of copper from this mine much less expensive than before the railroad was opened, and a considerable increase of production in future is likely, owing to the enormous deposits of copper in the district. The Ashio mine is the property of the Furukawa Mining Co.

Union, Neb.—John T. Maher, of this town, has secured the contract for the installation of a modern plumbing system in the new town hall.

Among the Plumbing and Heating Contractors



Illinois

Chicago and Vicinity.

The name of Charles C. Breyer, of 1545 West Division Street, past-president of the Chicago Master Plumbers' Association, has recently been sent to Washington, by former Mayor Harrison, as the latter's choice for postmaster of Chicago. Mr. Breyer has but one competitor for the post which will soon be vacated by the present incumbent—Postmaster Campbell. Mr. Breyer has for years taken an active interest in the political life of the city. He is at present a member of the Chicago Public Library Board.

R. J. Powers, of 312 Sherman Street, has been awarded the contract for the installation of the plumbing system in a $45,000 warehouse to be erected at 363-365 Erie Street. The steam heating contract went to the American Heating & Plumbing Corporation, of 54 West Randolph Street.

The plumbing system for a modern three-story and basement apartment building, to be erected at 408-414 North Taylor Avenue, Oak Park, at a cost of $76,000, will be installed by Renn Bros., of 367 West Chicago Avenue. The contract for the steam heating work was awarded to James LaVelle, of North Lombard Avenue, Oak Park.

The plumbing for a $25,000 apartment building, to be erected at 600-602 Lorel Avenue, will be installed by Wm. F. Fetridge, of 4818 Fulton Street.

F. P. Schuster, of 751 North Clark Street, has recently been awarded the contract for the installation of the plumbing in a six-flat apartment house, to be built at 640 Sheridan Road.

Chicago North and West Side Master Plumbers' Pleasure Club Gives Annual Ball.

What is conceded to have been the most largely attended reception and ball, which the North and West Side Master Plumbers' Pleasure Club has given during its existence, took place Wednesday evening, December 8th, at North West hall, West North Avenue and North Western Avenue, Chicago.

Over two hundred and fifty couples glided merrily over the floor of the splendidly appointed ballroom. The single, the married, the young, and the more mature, all joined with glee and enthusiasm in the joyousness of the evening.

The grand march, which began at 10 o'clock, was led by Mr. and Mrs. George Leebody. One of the pretty scenes of the evening was the presentations of bouquets of roses to Mrs. George Leebody and Mrs. Lewis Nelson, the two leading ladies, by the flower girls, Misses Lillie and Edna Hall.

Among the notable guests of the evening were Mr. and Mrs. Charles C. Breyer, Mr. and Mrs. Charles J. Herbert, and Mr. and Mrs. C. A. Dreier.

The members of the entertainment committee, to whom much credit is due for the success of the reception and ball, were the following gentlemen: W. R. Black, Fred J. Bohn, Lewis Nelson, and E. C. Wagner.

California

San Francisco and Vicinity.

The long continued dry weather has been a big help to local contractors, who have been able to make excellent progress on all contracts as well as on jobbing work. Notwithstanding the closing of the Exposition, there continues to be a good deal of residence and apartment house construction started, the easing of the money market and the improvement of business having been sufficient to more than offset the natural reaction in these lines, which was expected to follow the closing of the Exposition. Except for some very large remodeling jobs, the largest buildings of a private character now under way or in plan are apartment houses. The remodeling of the lower floors of the Claus Spreckels Building at Market and Third Streets and of the Emma Spreckels Building adjoining on Market Street will cost about $130,000. The alterations in the Postal Realty Building are expected to cost $22,000 and those of the Mortimer Fleishbacker residence to cost $20,000.

The most encouraging feature of the trade is the favorable showing made by the building records of the various California cities for the past month. All the larger cities and towns show a heavy gain in the valuation of the building for November, as compared with the records for the same month last year; and, in the case of San Francisco and Los Angeles there is also a substantial gain over the fall months of the present year. In San Francisco, the total valuation of the building undertaken during November was $1,332,053, as compared with $988,587 for November, 1914, and with $1,236,249 as compared with October, 1915. In Los Angeles, the November total was slightly over one million dollars as compared with $785,310 for November of last year, and $787,389 for October, 1915. In Oakland the November building record of $445,460 is almost double that of the same month of 1914.

Other Cities in the State.

W. C. Augustine, of Wasco, has sold the Wasco Plumbing Co.'s business to H. E. Ritchie.

The Water Department of Eureka is advertising for bids for 8,000 feet of 2-inch black iron water pipe and for 1,500 feet of 1-inch galvanized pipe of standard weight.

The contracts for the new Pullman school in Richmond were awarded this week. J. I. Collins received the plumbing at $1,011, and J. E. O'Meara the heating at $35.

The Public Safety Committee of the City Council of Los Angeles has recommended the adoption of an ordinance calling for the installation of automatic sprinkler systems in the basements of all buildings where inflammable materials are stored or manufactured.

Plans are now being prepared for the erection of a large hospital building in Los Angeles by the recently incorporated Kings Hospital Association. The company has a capital stock of $200,000, and has just secured permission to sell $75,000 worth of this stock.

The Board of Education at Los Angeles is advertising for bids for the installation of a sprinkler system on the Lincoln High School site.

The contracting plumbers of Sacramento have joined with other contractors and with the architects and material dealers of the city in organizing the Sacramento Builders' Exchange. William B. Rohl has been made temporary president of the new organization. A meeting to effect a permanent organization will soon be held.

Oregon

Portland and Vicinity.

Instead of a recently proposed plan to license and bond plumbing contractors for the purpose of increasing the standard of plumbing work in the city of Portland, there is to be proposed a plumbing permit system similar to that now in use in building and electrical operations. The permit plan is the principal part of a new plumbing code, which has been presented to the City Council by Commissioner Dieck. The code has been in course of preparation for practically a year. At present no permit, excepting a water permit, is required of plumbing contractors for plumbing work. Under the provisions of the new code, it will be necessary to take out a plumbing permit in the city building bureau, and to pay a fee, on the basis of the number of fixtures. The fee will provide for an inspection of the work. All work under the new code will have to be inspected and passed by the city plumbing inspecting force. The permit fee will be not less than 50c on any one job. The fees for various fixtures will be as follows: for each fixture provided for, whether installed or not, 10c; for each cesspool or sewer connected (not included in the regular plumbing permit) 50c; for each combination sink and laundry tray, 20c; for each set of washtrays (counted as one fixture) 10c; for each floor drain, connected to the drainage system, 10c. A number of changes in the methods of installations and the classes of materials to be used are provided in the code. Building Inspector Plummer says that the plumbing code revision committee, which has worked out the code in part, has aimed to reduce the general cost of plumbing. The changes, as made in the code, are more or less technical, involving certain changes in the class of lead to be used, in certain parts of the fixtures, the class of pipe and the method of installation. The old plan of requiring plumbing contractors to pay an annual license and to furnish a bond of $2,000 to guarantee proper work met with a storm of protest from small concerns, who asserted that it was aimed to put them out of business. It is said the permit plan has the approval of practically every contractor both large and small in the city of Portland, and that it will assuredly curtail careless workmanship. The permit fee will also, it is thought, nearly pay the overhead cost of the city plumbing inspection department.

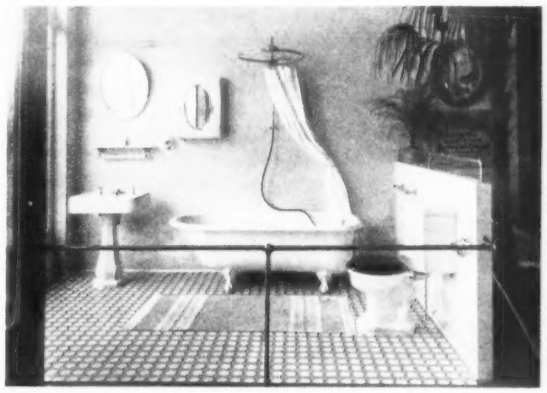
Architect W. W. Lucius, Lewis Building, Portland, has awarded the contract to J. F. Shea, Second and Ankeny Streets, Portland, for the installation of the heating and plumbing equipment in the four-story Alisky Building now under construction at Third and Morrison Streets. A steam heating plant will be installed, at a cost of about $7,500. Bids for the installations were opened some time ago and nearly every large shop in Portland submitted figures for the work.

Otis Brooks, of 1568 East Glisan Street, Portland, will erect a two-story and basement business block on East Sixtieth and Glisan Streets, 50 x 80 ft., of brick and concrete construction. Plans, which will be ready for figures about Dec. 20th, call for modern heating and plumbing systems.

Commissioner Dieck has presented to the City Council an ordinance providing for the installation of automatic sprinkling systems in basements of all buildings two stories or more in height, within the fire limits of the city of Portland, excepting dwellings and fireproof structures of the first, second and third classes. The sprinklers must be installed in all new buildings at the time they are constructed but three years time is given owners of buildings already built, in which to make the installations.

Williamson & Co., of Eugene, have secured the contract for the installation of plumbing in the new city hall under construction in that city.

Like the other states, where progress and enterprise exist, Oregon has its quota of live and progressive master plumbers, who are spreading the gospel of sanitation through the medium of modern plumbing systems. The accompanying picture of an up-to-date window display, is that of Graber Bros., of 141 South Liberty Street,



The Show Window of Graber Bros., 141 South Liberty Street, Salem, Oregon.

Salem, Ore. This firm has in recent years built up a flourishing business, and has many satisfied customers. The concern's show-room is another attractive feature of its establishment.

Washington

The Hurley-Mason Co., of Perkins Building, Tacoma, will receive bids for plumbing, heating and ventilating, about January 1st, in an eight-story office building to be built in Spokane, by that company. The structure complete will represent an outlay of $125,000. Plumbing and heating contractors from all over the State of Washington will submit figures for this work, and several larger firms in Seattle and Tacoma have already secured plans and specifications.

S. Normile, 314 James Street, Seattle, has been awarded the heating contract, and Norton & Smith, White Building, Seattle, the plumbing contract, for the Detention Home for the Council of Jewish Women, under construction at 18th Avenue and Main Street, Seattle.

Plans for the installation of plumbing and heating in the $150,000 Imperial Hotel, under construction at Eighth Avenue and Union Street, Seattle, by the Puget Sound Construction Co., will be ready for figures from plumbing and heating contractors about December 20th.

A. Hatch, of Arcade Building, recently secured the contract for the installation of a heat regulation system in

the Masonic Temple, under construction at Harvard Avenue and Pine Street, Seattle.

John A. Kent, Colman Building, Seattle, has secured the contract for both plumbing and heating in a pretentious residence under construction at 2711 Thirty-seventh Avenue, Southwest, Seattle, for Dana W. Brown.

The Merchants Central Heating Co., of Spokane, plans the immediate construction of a central heating system to heat office buildings in the business district. A site for the heating plant has been secured in the Railroad Addition, and the company will immediately begin the construction of a $150,000 plant and distributing system.

Ohio

Cincinnati and Vicinity.

One of the Cincinnati courts handed down last week a decision relative to the workmen's compensation act which is one of the most important and significant yet rendered in that connection, if it holds good in the higher courts. In effect, the court held that subscription to the workmen's compensation fund does not insure the employer against his own liability for negligence, but only insures the workman. The question arose in the case of a brewery employe who was killed by a traction car. His widow received the usual compensation from the State Industrial Board, but sued the traction company as well, and the court held the suit valid, although the traction company is also a contributor to the workmen's compensation fund. The case will undoubtedly be carried to the appellate courts for decision in case a judgment is rendered against the traction company.

The old St. Nicholas Hotel property, in Cincinnati, has been acquired by Browning, King & Co., who will build a new structure on the site, to cost about $150,000. Work is to begin as soon as possible, in order to enable the company to move before the expiration of its present lease. The structure will be one of the finest of its sort in the city, and the plumbing, heating and ventilating contracts will be very much worth while.

Frank G. Hamer was awarded last week, through Architect G. C. Burroughs, the plumbing contract for a handsome residence for T. G. Kennedy in Hyde Park. The building will cost over $20,000.

The Chapman Plumbing Co., of Canton, O., has received from the school board of that city, through Edmund Herrmann, architect, the plumbing contract on the new Twenty-third Street school, on its bid of $2,837. The heating contract for the building has not yet been let.

Ora M. Windle, a plumbing contractor of Dayton, O., has filed a petition for discharge in bankruptcy in the United States District Court in that city. His liabilities were $2,772 and his assets $1,452.

The Board of Directors of the Fair Association in Dayton, O., is considering the construction of a public comfort station on the grounds, in addition to the one now standing. The city is to build a sewer to drain all buildings on the grounds, including the one proposed.

There is to be built in Urbana, O., a considerable addition to the hotel known as the Colonial Inn, involving the complete reconstruction of the place. The work will cost about $25,000, and will include the installation of ten new bath-rooms, with corresponding public toilet facilities and other work. Architect W. F. Miller, of Springfield, O., has charge of the work, on which bids will be received about January 1st.

Massachusetts

Boston and Vicinity.

Building operations in Boston and its immediate suburbs are at their height. The unusually warm fall and early winter has been conducive to building with the result that a large number of buildings, and particularly apartment houses, have been started and boarded in, leaving the interior work to be done during the extreme cold weather. William Wight, a Dorchester real estate operator, has commenced work on ten three-apartment houses in that section of the city; Samuel Rudnick is constructing two buildings, each containing eighteen apartments, in Roxbury and in East Boston; and Joseph Goldinger, another real estate man, is having five three-family houses built.

M. M. Meltzer, of 11 Ashland Street, Boston, has contracts for plumbing in six houses on Gibbs Street, Brookline, and in four houses on Fuller Street in the same town. He also has the contract for plumbing in the Kenmore building on Commonwealth Avenue, Boston.

The city of Newton has appropriated $1,200 for the installation of shower baths in the Bowen schoolhouse in the Newton Center section of the city.

Other Cities in the State.

William A. Bradford, of Quincy, vice-president of the Massachusetts State Association of Master Plumbers, was the chief guest and speaker at the monthly meeting and dinner of the Lynn Master Plumbers' Association, held at Hotel Hamilton, Lynn, on Tuesday evening, November 23rd. Mr. Bradford spoke on "Water-Relief Valves," touching upon the importance of having safety valves attached to domestic hot water systems. A number of the members of the association also spoke briefly. President S. H. Pool, of the Lynn Association, was the presiding officer and others present included Vice-President R. T. Allan, Treasurer F. K. Tobin, Secretary E. B. Paige, F. W. Sawyer, George F. Ryan, Jr., J. B. Feehan, F. Graves, A. McKenzie, F. M. White, John Cornell, James Kellary and Fred Perkins.

The J. J. Cotter Co., of Springfield, has the contract for plumbing in three large additions to be made at the plant of the Fiberloid Company in the Indian Orchard section of Springfield.

The city of Fall River is erecting a new central police station and Lagasse Bros. of that city have the contract for the plumbing work.

The contract for installing a new heating system in the Elm Street fire station at Southbridge has been placed with George C. Winter of that town.

John F. Cabean, one of the leading plumbers of Salem, has been awarded the contract for plumbing, heating and ventilating in a large new agricultural school building to be erected in the nearby town of Danvers.

Ovila R. Cote, a member of the plumbing firm of Cote Bros., of Turner's Falls, was married on November 25th to Miss Blanche T. Martin of that place.

New Hampshire

William J. Mooney, a contracting plumber of Berlin, N. H., was married to a Massachusetts girl, Miss Edith Carolyn Berneche of Northampton on November 26. The ceremony took place in Northampton in the presence of a large number of friends.

Connecticut

The Danbury Plumbing Co., of Danbury, on December 1st, moved from 4 Keeler Street to 89 White Street. Mortimer S. Scofield is proprietor of the business.

An inventory of the estate of Thomas F. Sheehan, a Middleton plumber, who died recently, showed property to the value of about $24,000, much of it in cash.

Adna F. Johnson, a plumber, and O. I. Cooley, an electrical contractor, have opened a plumbing and electrical business at 155 Main Street, New Britain, under the firm name of Cooley & Johnson.

The Waterbury school board has bids for heating in the Hendricken school building and plumbing in the Mattatuck school under consideration and will place the contracts soon. The list of bidders was as follows: Heating, with air washing, Barlow Bros., $8,700; M. J. Daly, $9,616; Daly Bros., $9,478; without air washing device, Barlow Bros., $8,200; M. J. Daly, $91,06; Daly Bros., $8,976. Plumbing: Barlow Bros., $5,898; M. J. Daly, $5,251.

Samuel Miller, of Stanford, has the contract for plumbing in a two-family house in that city for Andro Dufroit.

Modern plumbing and steam heating is to be installed in the house of W. B. Nichols at Seymour by J. H. Alvord, a Winsted plumbing contractor.

Steam heating apparatus is to be installed in a new church building at Ellington by the Kuhnley Plumbing & Heating Co., of Rockville.

Carlson & Benson, of Bridgeport, will do the plumbing and furnace heating in a house on Courtland Avenue, Bridgeport, for Andrew Larson.

M. Ginsburg, of Bridgeport, has contracts for plumbing in a four-apartment house on Taft Avenue, and similar work in another house on the same street arranged for two families.

Other Bridgeport contracts recently placed include: Plumbing and heating in ten houses to be erected for E. J. Orton Co., placed with I. Cunningham; plumbing and hot water heating in two-family house on Nelson Terrace for Martha A. Anderson, awarded to H. C. Lovell & Co., of Stratford; plumbing in four-family house on Waterview Street, awarded to C. Hubler; plumbing and heating in new schoolhouse in the Stratfield district of the town of Fairfield, placed with F. and F. C. Booth, of Bridgeport.

M. J. Daly & Son, Inc., of Waterbury, has the following contracts in hand: Plumbing in new business block at corner Grand and Canal Streets for the Waterbury Democrat Co., plumbing and heating in new house on Columbia Boulevard for George S. Bissett.

The Charles Thatcher Co., another Waterbury concern, is to do the plumbing in a new apartment house on Park Road for John McDonald.

Rhode Island

Reuben S. Bemis, plumbing inspector of the City of Providence, and past president of the New England Association of Plumbing Inspectors, who is also very prominent in Masonic circles as Worshipful Master of the Rhode Island Grand Lodge of Masons, was tendered a reception and banquet by brother Masons on the evening of December 2nd. The affair was held in the Masonic Temple at Providence and was attended by nearly 400 persons. Mr. Bemis was presented with a handsome mahogany chime clock, the gift of Mt. Vernon Lodge of Providence, of which he was at one time Commander.

J. H. Smith, of Pascoag, has a number of plumbing contracts in hand including several for the Stillwater Worsted Co. He also will install a steam heating system and a new bathroom in the house of Harry Ames in Harrisville.

Maine

Stewart & Marston, plumbers of Skowhegan, have made a number of changes in the heating system of the Monson Academy, Monson.

The contracts for heating and plumbing in three houses which F. O. Herrick is erecting at Corinna have been awarded to the Dana Crookett Co., of Dexter, the lowest bidder.

Franklin Lodge, I. O. O. F., of Farmington, is to have a new steam heating plant installed in the lodge building and has placed the contract with Wilfred McCleary.

Murphy & Menealley, of Lewiston, are installing a new steam heating plant in a business block at 132 Oak Street, Lewiston.

Albert H. Bisser and M. Conti, two Eastport plumbers, have formed a partnership and will soon open a plumbing establishment on Central Wharf, Eastport.

Pennsylvania

Philadelphia and Vicinity.

In the Quaker City are a considerable number of up-to-the-minute plumbing and heating establishments. Among them is that of Howard V. Gadsby, 3039 Frankford Av-

The Plumbing and Heating Establishment of Howard V. Gadsby at 3039 Frankford Avenue, Philadelphia.

enue, which is conducted along thoroughly modern lines. The accompanying illustration shows the attractive front view of the establishment with its artistic window display. In the foreground are two of his employees, ready to "go on the job" in the neighborhood.

Hoben & Doyle, of 21st and Pine Streets, have secured the contract for the plumbing and heating on the new addition to the Evening Bulletin building, now being erected on Juniper and Filbert Streets.

Wm. McCoach, Jr., of 1607 Sansom Street, has been awarded the contract for the plumbing in the new National Guard Armory, which is being erected at the corner of 33rd Street and Lancaster Avenue.

F. G. Voegele, of 22nd and Berks Streets, has been awarded the contract to overhaul the heating system in the Northwestern General Hospital.

Edw. P. Robertson, of 3456 Amber Street, has secured the contract to install a heating system in the property at 3470 Joyce Street.

M. Glick, of 712 Girard Avenue, has been awarded the contract to install 40 new lavatories and a new heating system in the hotel at 621 Arch Street, for Class & Nachod.

P. J. Hoft, of 245 South Eighth Street, has been awarded the contract for the installation of a heating system in the building at the corner of Eighth Street and Washington Avenue.

R. A. Hirtsch, of Fox Chase, Pa., is installing plumbing in the residence of J. W. Lippincott, at Beth Aires. He will also install the plumbing and heating in the home of Dr. Emery, of Fox Chase.

Among the successful master plumbers of the "Keystone State," who believe in the wisdom of carrying a convenient sideline, is Frank Baab of 346 South Main Street, Wilkes-Barre. Mr. Baab is one of the busy men

The Showroom of Frank Baab, at 346 South Main Street, Wilkes-Barre, Pa.

of the trade in his city, and the accompanying picture will largely verify this assertion. Mr. Baab is to be seen behind the counter—to the right—in the photo—ready to receive prospective customers. In association circles in Wilkes-Barre, he is known as one of the live wires.

Tennessee

Nashville and Vicinity.

Much interest among Nashville plumbers attaches to the report on the waterworks presented to the City Commissioners by James C. Cameron. Mr. Cameron is conducting an audit and efficiency survey of municipal affairs, this work being an outgrowth of the recent troubles in connection with the disappearance of city records. One of the interesting features of the report was the discussion of water-supply extension outside the city limits. There is much construction work going on in the suburbs and there has been considerable extension of water-mains as a result. The report states that "such supply is defensible only upon the probable addition to the city of the district thus served and the desirability of building up and extending the suburban residential portions of Nashville. Although the expense of laying the mains outside the city limits is paid for by individuals or land companies we recommend that the materials used and the work done in laying such mains be regulated in accordance with city specifications and under the city's supervision." The report further suggests that all such water-mains be made the property of the city. The commission is expected to adopt the greater part of the recommendations of the auditor and changes will therefore be made, it is believed, to conform to the report. This will probably not affect the amount of work done but will affect the conditions under which it is done. The auditor urges that every tap in the city be metered, the records of September 30 showing that out of 19,779 connections, 16,271 were metered. The fact that a large part of the city is without a trunk sewer is also mentioned.

The J. L. Park Plumbing Co. was awarded a contract by the Commissioner for a large amount of service pipe installation over two competitors. This was the second opening of bids on the jobs. On the first call, one bidder failed to bring in a certified check with the bid, but as the bid had been read, he was permitted to bring in a check later. Another bidder objected to this procedure on the ground of illegality and asked to withdraw his own, and as this reduced the number it was voted to reject all bids.

The firm of Wright & Young, which has been in existence for several years, has dissolved, J. W. Wright retiring from the business. F. J. Young will continue to carry it on. Mr. Wright is at present in the country and has not yet decided whether he will reenter the plumbing business.

Herbrick & Lawrence secured a large contract during the week in the installation at the boys' dormitory of the Masonic Widows' and Orphans' Home, just outside of Nashville. In addition to other plumbing work, the contract calls for a 150-gallon boiler and a number of shower-baths. The contract price was about $1,800 and will keep firm busy for some time. The concern is also installing several drinking-fountains at the Y. M. C. A. building, a gift of one of the members.

Charles W. McGee is installing plumbing and heating equipment in two residences being built by D. E. Mollernee. He is also doing similar work in two houses for J. W. Spiller.

Several Chattanooga plumbing concerns that had done work on the grounds of the "National Conservation Exposition," an amusement park in Chattanooga were among the contractors that won suits filed against the owners. Judgments amounting to several thousand dollars had already been received but the contractors were unable to collect them. The court handed down a decree giving them permission to remove the plumbing on the grounds and in the buildings if the judgments are not paid in sixty days. Part of the money had been received during the progress of the work.

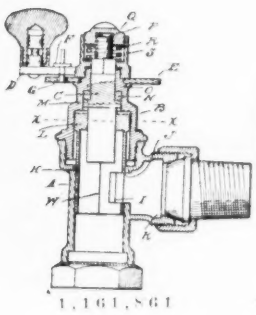
Nashville plumbers are figuring on the installation at the United States postoffice building at Humboldt, Tenn. The job is to be let as a separate contract. A three-story apartment house, to cost about $40,000 is to be a detail job. A big construction job that will be ready shortly will be the addition to St. Thomas' Hospital, which Father Plunkett is supervising. Foundation building is now under way. The addition is estimated to cost $300,000.

J. W. Oliver, sales manager of the Ahrens & Ott Manufacturing Co., of Louisville, was in Nashville last week as a commissioner from business organizations of the Kentucky city to investigate the Nashville traffic bureau. Plans are on foot to organize a bureau in Louisville similar to the one here.

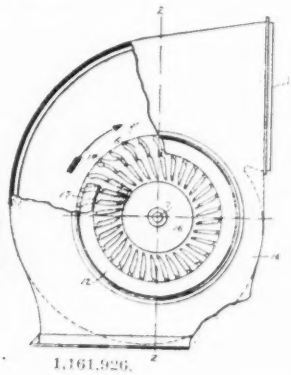
Patents

Heating Department.

1,161,861. Valve. Frederick W. Hodges, Detroit, Mich., assignor to Detroit Lubricator Company, Detroit, Mich., a Corporation of Michigan. The combination with a valve case, of a plug valve in said case, a stem for rotating said valve, a handle engaging the stem for operating the valve, an adjustable stop member carried by the handle, an indicator disk mounted upon the case and formed with shoulders in the path of rotation of the stop member, normally limiting the angular motion of the handle, and means operable upon an adjustment of the stop member out of the path of said shoulders, and upon subsequent rotation of the handle, for adjusting the valve with respect to the stem and valve case to variably restrict the port opening of the valve.



1,161,861



1,161,926.

1,161,926. Centrifugal Fan. Albert A. Criqui, Buffalo, N. Y. A centrifugal fan having a wheel provided with a plurality of blades, the surface of each of said blades being made from a portion of the surfaces of two cones, having their curved surfaces tangent to each other, the tip of each blade being substantially coplanar with the axis of said wheel and the heel of each of said blades being non-coplanar with the axis of said wheel, and the disk end of said wheel being substantially the same in external diameter as that at the entrance end thereof.

1,161,877. Air-Valve for Radiators. Thomas A. Nelson, Chicago, Ill. In an air valve for radiators, the combination with an inclosing casing adapted to communicate with the radiator and having a discharge outlet at its top, of a valve seat around said outlet adjustably supported by said casing, a thermostatic post adjustably supported within said casing at its lower end, said adjustable means comprising an upwardly turned cup adjustably threaded into the base of said casing and adapted to receive the base of said post upon an upwardly extended stud, a valve, a cap upon which said valve is supported having a depending pin inserted in said post, said valve coöperating with said valve seat, and means for preventing the crushing of said post by too great inward adjustment of said valve seat, said means comprising a metal rod embraced within said post between and co-acting with the depending pin of said cap and the stud upon which said post is supported.

1,162,151. Combined Vacuum Heating and Cleaning System. James Logan Fitts, Merchantville, and John F. Hale, Woodbury, N. J., assignors to Warren Webster & Company, a Corporation of New Jersey. In a combined vacuum heat-

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Malleable Iron Fittings and Drainage Fittings.

Special Malleable and Grey Iron Castings.

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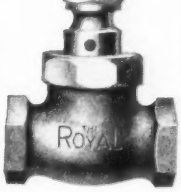

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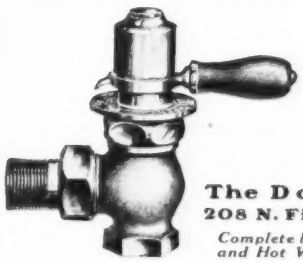

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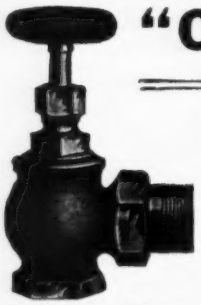

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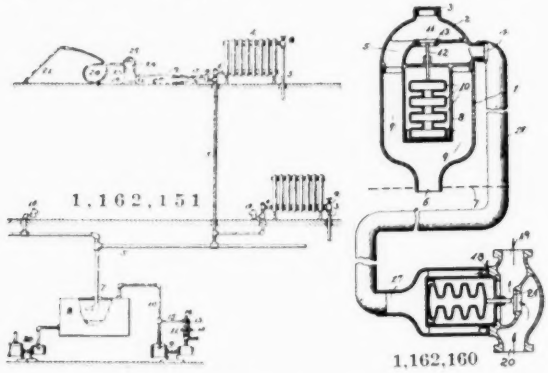
ing and cleaning system, the radiators and means for supplying steam thereto, in combination with a return pipe having at intervals in its length a plurality of normally sealed inlets, valve devices between the return pipe and the radiators for permitting the passage of water and air but restricting the passage of steam, a receiver arranged at the lower end of the return pipe for receiving the air and water of condensation, vacuum creating devices connecting with the receiver for maintaining a partial vacuum therein, an automatic governor for controlling the vacuum creating devices for maintaining a predetermined extent of partial vacuum within the receiver irrespective of the variations in quantities of air flowing thereinto, means for removing the water of condensation from the said receiver without affecting the vacuum therein, a portable vacuum cleaning apparatus comprising a flexible hose having at one end a vacuum cleaning tool and at the other end a part for connection with either of the normally sealed inlets on the return pipe for providing vacuum communication between said return pipe and the flexible hose, and said hose also having between its ends a suitable dust collecting device to remove the dust from the air before passing into the return pipe.



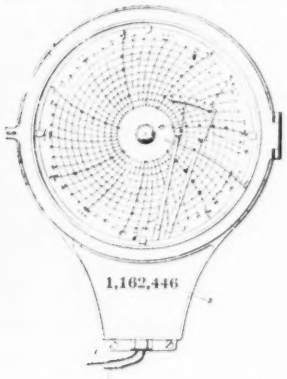
1,162,160

1,162,160. Low-Water Safety Apparatus for Steam-Boilers. William B. Haskins, Los Angeles, Cal. In a low-water safety apparatus for steam boilers, the combination with a fuel controlling device having a valve therein and sensitive expansion disks for operating said valve to control the supply of fuel, of a water level actuated device having a connection adapted to communicate with a steam boiler at the low water level, a valve therein adapted to permit the egress of steam partly blowing out into the open air for alarm and expansion disks for operating said last named valve, and of a pipe connection leading from the steam egress of the water level actuated device to the fuel controlling device and adapted to pass steam, simultaneously with the alarm-blowing, adjacent to the first mentioned expansion disks, whereby the fuel supply is controlled by the fluctuations of the water level, all substantially as described.

1,162,446. Hygrometer. William H. Bristol, Waterbury, Conn., assignor to The Bristol Company, Waterbury, Conn., a corporation of Connecticut. In a recording hygrometer of the wet and dry bulb type; two independently actuated measuring arms for the respective temperatures, and suitable marking members carried by said arms; a record sheet provided with a suitable scale and upon which the said marking members are adapted to effect a record; a scale to indicate differences of temperature, carried by the arm measuring the atmospheric temperature, located beyond its corresponding marking point and graduated toward the other of said arms; and a pointer carried by the other arm and extending beyond its corresponding marking point to coöperate with said scale of differences.

1,162,731. Vacuum Reducing-Valve. William P. Burke,

Springfield, Mass., assignor of twenty-four one-hundredths to Frank T. Walsh, Springfield, Mass. In a pressure reducing device, the combination with a main, a service pipe, faucets served by the service pipe, and a pressure reducing valve controlling communication between the main and service pipe, comprising a casing including two sections the lower of which is open at its lower end to the atmosphere, a diaphragm disposed between said sections and clamped between the meeting edges thereof against displacement, a valve stem extending from the valve to the diaphragm through the open end of the casing and operating freely therethrough, said stem having a head thereon, said head being removable through the open end of the casing and an ejector having a relatively small opening formed therein adjacent its upper side, affording communication between the service pipe and the upper side of the casing above the diaphragm, said valve which controls the flow of water from the main to the service pipe being closed when all of the faucets are closed and opened proportionately according to the number of faucets which are opened, upon the step by step movement of the diaphragm, as the said faucets are opened and closed.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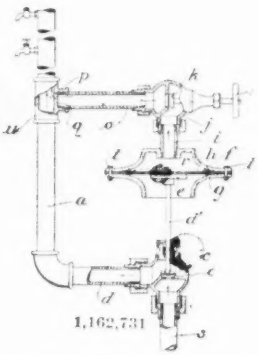
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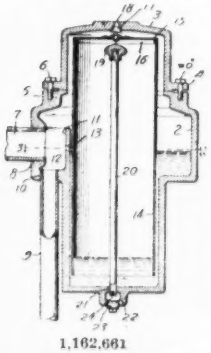
1,162,661. Air-Vent Valve. Wilfred Shurtleff, Moline, Ill., assignor of one-half to Moline Vacuum-Vapor Heating Co., Moline, Ill., a Corporation of Illinois. An air vent valve for heating systems, comprising a substantially cylindrical casing having an outlet port in its top, and having an annular enlargement intermediate its ends, and a well or auxiliary chamber at the enlargement at one side of the casing and opening at its top into the enlargement, said casing having an inlet port and a drain port at the chamber, the inlet port being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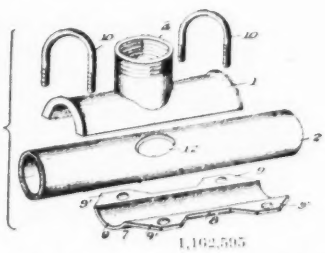
1,162,595

adapted for connection with the heating system, at any part above the water level, and the chamber having an overflow opening at the axis of the inlet into the body of the casing, a float fitting within the body of the casing and having an open bottom, a valve at the top of the float cooperating with the air outlet of the casing and arranged to be closed by the expansion of the air in the float when heated above a predetermined point, and means for limiting the downward move-

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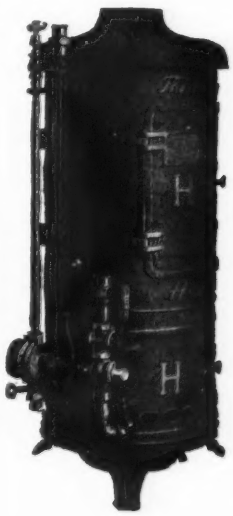

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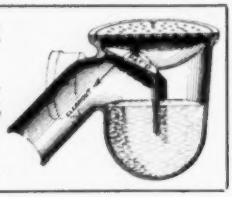

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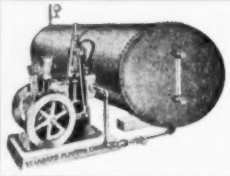

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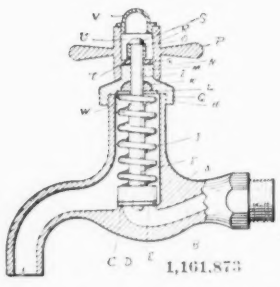
ment of the float, said means being adjustable and comprising a stem adjustably connected with the bottom of the casing and having a head at its top for engagement by the top of the float.

1,162,595. Pipe Connection. John T. Forgey, Wellsville, Kans. A T-connection for pipes formed with a lateral opening, said connection comprising a complete pipe portion adapted to encircle the said pipe for a material part of the length thereof, said pipe portion being formed in sections, one section including a shell of approximately semi-cylindrical shape, the edges thereof having inturned flanges, the diameter of the shell slightly exceeding that of the pipe with which it cooperates, the inturned flanges forming margins to receive and support backing intermediate the shell and pipe, and a saddle cooperating with the shell to embrace the pipe beyond the shell, said saddle having radially disposed ears, and U-bolts encircling the shell and secured through the ears to the saddle, the shell being formed with a pipe projection to register with the opening in the pipe.

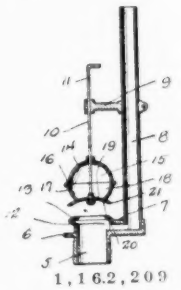
Plumbing Department.

1,161,960. Soldering-Iron. Amie V. Paquette, Chicago, Ill., assignor to L. B. Allen Co., Chicago, Ill., a Corporation of Illinois. In a gas-heated soldering iron, the combination of a handle having a gas-pipe therein, a mixing tube in separated relation from the handle, a coupling between the handle and the mixing tube having an air-inlet and having one of its ends connected to said pipe and the other to said tube therein, a nozzle connected to one end of said coupling and extending entirely across said inlet and terminating in the mixing tube, and a soldering point connected to said tube.

1,161,960



1,161,873



1,162,209

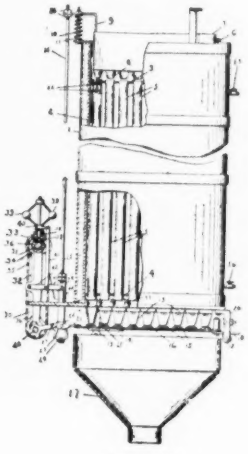
1,161,873. Faucet. Patrick A. Mahoney, Portland, Me. In a faucet, a casing having a valve chamber and valve seat, a valve having a valve stem, a cap secured to the top of the valve chamber and provided with a stem way, a spring interposed between said cap and valve tending to hold said valve to its seat, a tubular lever having threaded engagement with said cap and having a diaphragm provided with a valve stem way and a lug on said stem above said diaphragm, the valve stem being free to move upwardly independently of the lever.

1,162,209. Valve for Flush-Tanks. George Banker, Pittsburgh, Pa. In a valve such as described, the combination of a casting having a flared upper end and inwardly extending upwardly inclined flange forming a valve seat, a ball valve movable to and from said valve seat, said ball valve having a bottom the lower edge of which extends below the valve and the lower side of which is concaved for conforming to the shape of the valve seat, for supporting the valve.

1,161,834. Heater Control Mechanism. Allen C. Brantingham, Toledo, Ohio, assignor to C. G. Hammond, trustee, Silver Creek, N. Y. A device for treating material embodying a plurality of ways controlling mechanism for material flow through said ways including a reciprocable member receiving

treated material, continuous driving means therefor, and automatic means for varying the reciprocations of said member.

1,161,835. Heater Control Device. Allen C. Brantingham, Toledo, Ohio, assignor to C. G. Hammond, trustee, Silver Creek, N. Y. A device for treating material embodying a



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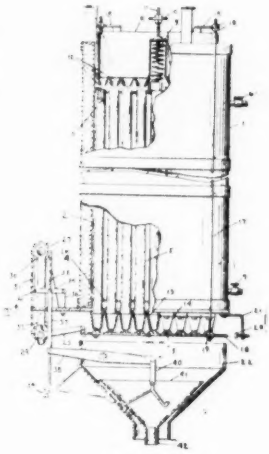
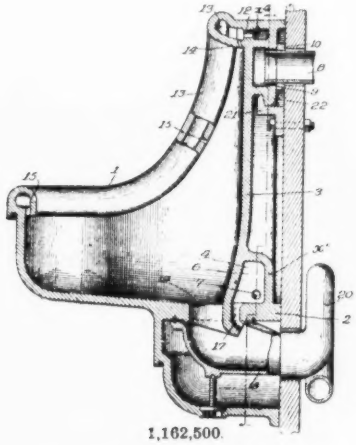


1,161,835.

way therethrough, and controlling means for material flow including a platform member below the way movable toward and from the way, said platform provided with an opening permitting material flow from the way and material flow actuated means for shifting the member.

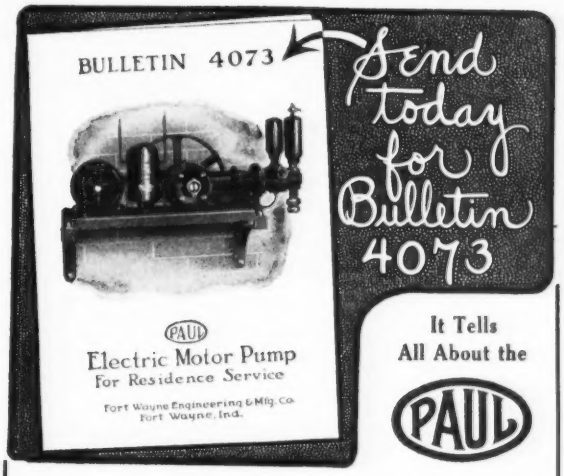
1,162,500. Urinal. Patrick J. Madden, Chicago, Ill. A device of the class described having a receptor, having an outlet opening at the bottom thereof, an annular chamber located in an upright plane at the back of the receptor, a water supply opening communicating with said chamber, a hollow flushing rim, a duct or passage connecting the upper portion of said chamber directly with the upper portion of the receptor and a duct or passage connecting the upper portion of said



1,162,500.

chamber with the upper portion of the flushing rim, a jet opening communicating with the lower portion of said chamber, and a trap communicating with the said outlet opening the dam or overflow level of the trap being located at the level at which it is desired the refill water shall stand.

1,161,612. Solder. Joseph Cayocca, Sacramento, Cal. A solder for aluminium composed of tin, lead, and aluminium, the tin being largely in excess of the lead and aluminium.



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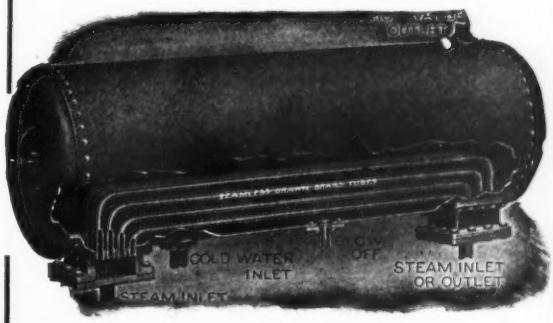

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